This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

HARVARD UNIVERSITY

VE RI TAS

LIBRARY OF THE GRADUATE
SCHOOL OF DESIGN

TE
25

First Annual Report

of the

Department of Engineering

to the

Court of Common Council

City of Hartford,
Connecticut,
[illegible]
[illegible]

FIRST ANNUAL REPORT

OF THE

Department of Engineering

TO THE

Court of Common Council of the City of Hartford, Conn., for the Year Ending March 31, 1908.

HARTFORD PRESS:
R. S. PECK & CO.
1908

HARVARD UNIVERSITY
The Library of the Schools
of Landscape Architecture and City Planning

ORGANIZATION.

FREDERICK L. FORD, City Engineer.
ROSCOE N. CLARK, Assistant City Engineer (Sewer Division.)
PAUL SHELDON, Division Engineer (Bridge Division.)
HERBERT G. CLARK, Division Engineer (Street Division.)

JOHN P. MURPHY, Assistant Engineer.
WILLIAM T. TAYLOR, Assistant Engineer.

EDGAR T. DUNCAN.
WILLARD S. BREWER.
W. LEROY ULRICH.
ALDEN G. STEVENS.
ROBERT J. ROSS.
THOMAS ROWLAND.
GEORGE ANGELO.

FLORENCE L. CHAPIN, Stenographer.

REPORT.

To the Honorable Mayor and Court of Common Council of the City of Hartford:

Sirs:—

I have the honor to submit the following report for the Department of Engineering for the year ending March 31, 1908.

The organization of the Department of Engineering was authorized by the following amendment to the Charter of the City of Hartford, approved on March 26, 1907.

"RESOLVED BY THIS ASSEMBLY: SECTION 1. That there shall be in the City of Hartford a department of engineering, the head of which shall be called the city engineer and shall be appointed by the mayor, by and with the advice and consent of the board of aldermen, and shall hold his office during good behavior or until removed for cause.

SEC. 2. Said department of engineering, under the direction of the court of common council or the board of street commissioners, the board of park commissioners, the board of fire commissioners, the board of police commissioners, the board of charity commissioners, the board of health, the board of assessors, the board of contract and supply, the board of finance, or such other boards or commissions hereafter created as the court of common council shall designate, shall make all surveys, maps, plans, drawings, specifications, and estimates relating to the work of said boards or any bureau or division thereof, or for the court of common council or any committee thereof, or for the board of assessors; shall superintend the construction of all public works of the city of Hartford or any department thereof not especially entrusted to other officers, and to do any other engineering work which said council or said boards may require; and shall perform such other duties as may be designated by said court of common council.

SEC. 3. The city engineer shall have the custody of all maps of the City of Hartford, or any department thereof, not especially entrusted to other city officials under the general statutes. He shall also furnish to the corporation counsel a copy of any map, drawing, or memorandum in his possession which said corporation counsel may require for the trial of any case or for the preparation of any opinion.

SEC. 4. All employees of the engineering department shall be appointed and may be removed by the city engineer. The salaries of the city engineer and of all employees in said department which exceed one hundred dollars per month shall be determined by the court of common council, by ordinance. The salaries of all employees of said department which do not exceed said amount shall be fixed by the city engineer; provided, that the whole expense of administering said department shall not exceed the sum appropriated therefor by the court of common council of said city.

Sec. 5. All provisions of the charter of Hartford inconsistent herewith are hereby repealed."

On April 15, 1907, the appointment of the City Engineer by his Honor William F. Henney was confirmed by the Board of Aldermen.

On June 11, 1907, the following ordinance, relating to salaries in the Department of Engineering, was passed and organization was perfected soon thereafter.

"Be it Ordained by the Court of Common Council of the City of Hartford:

Sec. 1. Beginning July 1, 1907, the salaries of the City Engineer and of the employees in the department of engineering whose pay is in excess of the sum of one hundred dollars per month are hereby fixed and established as follows:—

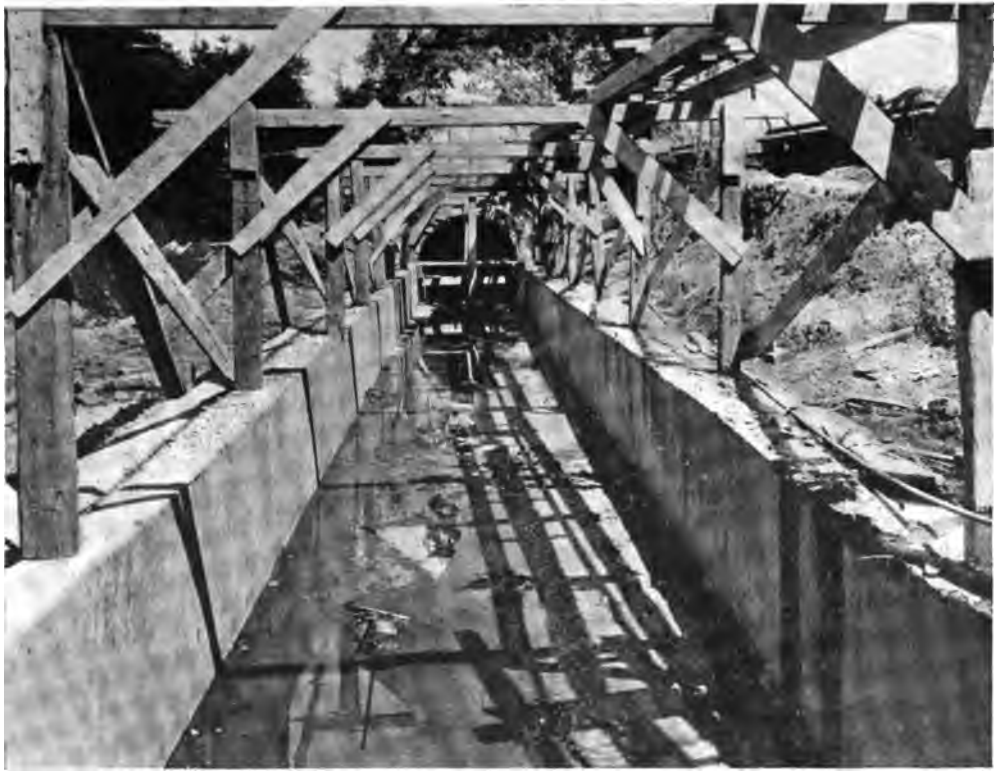
City Engineer at the rate per year of	$5,000.
(Said amount to include transportation for City Engineer.)	
Assistant City Engineer at the rate per year of	2,280.
One Division Engineer at the rate per year of	1,680.
One Division Engineer at the rate per year of	1,560.
One Assistant Engineer at the rate per year of	1,440.
One Assistant Engineer at the rate per year of	1,320.

Sec. 2. All ordinances and parts of ordinances inconsistent herewith, and all ordinances concerning the appointment and qualification of employees heretofore appointed by the City Engineer and by the Board of Street Commissioners to carry out the work entrusted to the Engineering Department are hereby repealed."

ABOLITION OF GRADE CROSSINGS.

Another year should see the completion of the work in connection with the abolition of the Walnut Street grade crossing. This with the elimination of the Albany Avenue crossing, mark the carrying out of two large and important pieces of work.

The subject of grade crossings is a vast and important one, full of an intricate mass of details requiring special study for each and every problem considered.



Homestead Avenue Intercepting Sewer — Section "A."
View of invert and side walls ready for arch.

The tendency in the last two or three years has been toward railroad companies and municipalities uniting in an effort to wipe out these menances to public safety. From a municipal standpoint, all grade crossings should be eliminated at the earliest possible moment, and from a railroad standpoint, each year's delay in abolishing a crossing in any rapidly growing city means an additional burden due to the increased valuation of the property which must be condemned, or for damages for which a larger compensation must be paid. I have made a considerable study of the conditions of the grade crossings in this city, and have prepared plans for the elimination of a few crossings. As a result of several meetings between the railroad committee of the Court of Common Council, the Board of Street Commissioners, the Commission on City Plan, the Railroad Company, and the City Engineer, I have been instructed to prepare preliminary plans and estimates covering the abolition of all crossings within the city limits. This will mean that several different methods for the solution of the problem must be worked out and discussed by all parties interested, before any definite action can be decided upon.

Owing to the fact that no appropriations have been made in the past for a study of this important problem, the progress made has been slow, but I hope to be able to present a report in the near future, in such form that action can be taken and some plan adopted for removing all grade crossings.

ALBANY AVENUE IMPROVEMENTS.

The Albany Avenue Improvements commenced nearly three years ago and carried out primarily to abolish the grade crossing of the Central New England Railway, are now completed.

The work was carried out under an agreement with the Central New England Railway Company and the Keney Park Trustees, and was of considerable magnitude. The tracks were depressed a maximum distance of about nine feet at the old crossing, and the change in grade necessitated thereby, covered about 2,500 lineal feet. The excavation for the new track grade was performed by means of a steam shovel in connection with an industrial railway, although teams were used on a small portion of the work. The material excavated was used in building a new highway, about one hundred and twenty-five feet to the north of the old location of Albany Avenue.

The new highway is seventy-five feet in width, with a fifty-one foot roadway and two 12-foot sidewalks. Cobble gutters have been laid upon each side, and a central strip twenty-seven feet wide has been macadamized.

In connection with the work previously outlined, it became necessary to design and build two bridges, one of which is a skewed steel span fifty-four feet in length, and the other a concrete arch having brown stone voussoirs with trap rock facing which presents a very attractive appearance.

The street railway tracks are now in a position over the new roadway as far as Scarborough Street, and the carrying out of this improvement should do much toward hastening the development of this attractive section of the city.

BRIDGE SUPERVISION.

Because of the technical questions involved in the proper treatment of bridge maintenance, it would seem advisable that the responsibility for this work which has previously rested with the Superintendent of Streets, should be transferred to this Department, and contracts for carrying out the necessary work on repairs or alterations to existing bridges or for the construction of new bridges, should be referred to the Department of Engineering for execution.

Within the last few years there has been a growing tendency on the part of many engineers to study and determine the best means of maintaining the life of steel structures after once built. This is especially true in regard to steel bridges.

With proper care the life of the superstructure of a steel bridge, if properly designed, should be almost indefinite. There are many cases on record where within twenty years from the time a bridge has been built, it has become necessary to remove the old one and to replace it with an entirely new structure. I have recently seen a bridge, now in the process of being cleaned, where the railing if left three years longer would have to be replaced at an expense of nearly $10,000.

There are many bridges in this country, to-day, the superstructures of each of which have cost about $100,000, which have received great care and attention in their design, and details of construction, but when once built, it has been taken for granted that no further attention or expense was necessary for their maintenance.

When the fact is considered that structures of great magnitude will exist for only about twenty years if neglected, and at least for several generations if properly maintained, some idea can be obtained of the importance of this subject.

While we have no steel bridges in Hartford costing as much as the examples just cited, nevertheless proper maintenance and treatment are necessary to preserve the best interests of the city.

Several of these structures were designed by rival bridge companies under close competition, and the sections of the steel members are far too light to permit the metal to deteriorate and still have the bridges carry the loading for which they were designed.

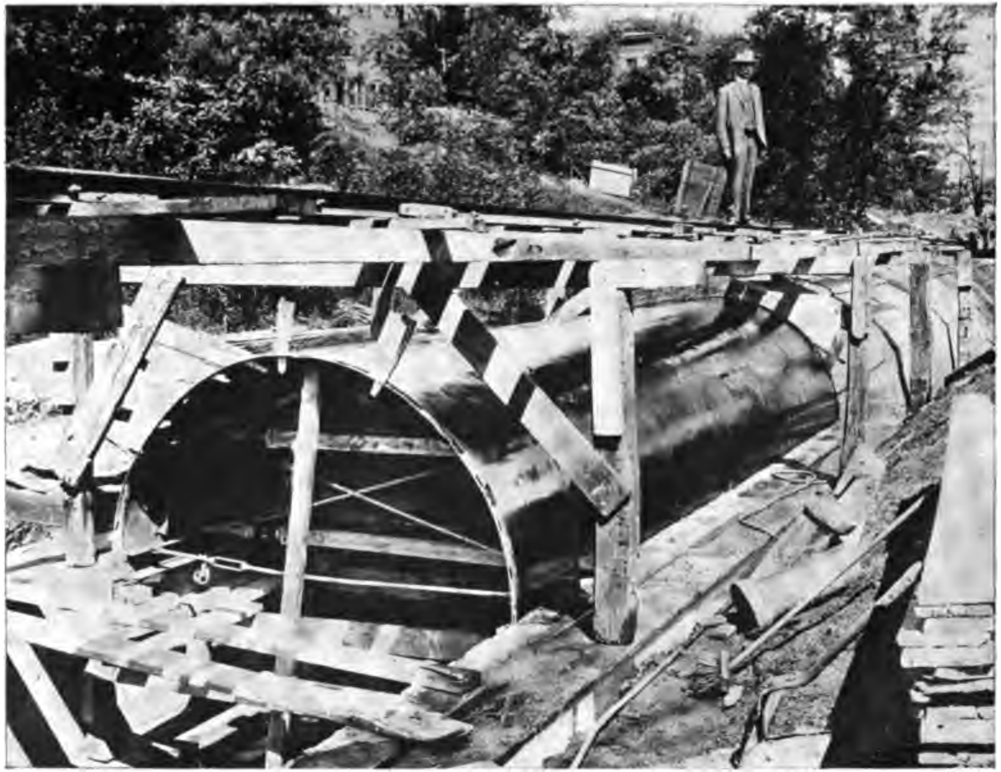
The Laurel Street Bridge weighing nearly a half million of pounds is a good illustration of the effect caused by neglecting to thoroughly clean and paint the metal work when required. This bridge was built in 1896, and four years ago (eight years after the bridge was built) one could readily remove steel lattice bars 2" x ¼" in section, parting them easily with ones fingers. Several experts in passing have viewed this bridge and stated that for its length of service, they have never seen a similar structure in a poorer or more unsatisfactory condition.

CHURCH STREET EXTENSION.

Very little progress has been made during the past year toward the layout and construction of Church Street Extension, except the preparation and publication of the award of damages and assessment of benefits as determined by the Board of Street Commissioners. Several parties aggrieved by this assessment, have taken appeals to a Judge of the Common Pleas Court, as provided by law, so that nothing further can be done until this assessment is either upheld by the Court, or a re-assessment is made. After this decision, the Court of Common Council must approve the final report of the Board of Street Commissioners before definite action can be taken toward the carrying out of this improvement.

CONDITION OF SIDEWALKS ADJACENT TO POLES.

A walk about the central portion of Hartford, where the entire width of the sidewalk is flagged, shows many instances where the stones around the poles of the, various public service corporations are in a wretched condition. It is safe to assume that these stones, laid and owned by the abutting property owners, were in good condition before the pole gangs interfered with them. In many cases the stones look as if they had been broken with a sledge hammer or a crowbar in the hands of unskilled workmen, rather than cut in a neat and orderly maner by skilled mechanics. In some cases where the holes are cut or broken several times larger than necessary for the reception of the pole, an attempt has been made to repair the injury by plastering a veneering of cement mortar over the wound. These makeshift repairs are frequently as unsightly as they are unendurable. In many other places are to be seen holes in the flagging near the curb lines containing the stumps of former poles. It seems to me that this misuse of the City's sidewalks should be stopped. Property owners tolerate enough when they consent to the erection of poles, often ugly and unsightly, in front of their pre-



Homestead Avenue Intercepting Sewer. Section "A." showing Blaw Collapsible steel center 10 feet in diameter, used in the construction of this concrete sewer.

mises, but when their sidewalks are mutilated and misused, as they frequently are, the abuse is carried to an objectionable extreme. In my judgment, every permit for the erection of poles upon streets where the flagging has to be disturbed, should contain a condition that the stones should be cut to neatly fit around the poles by men familiar with that class of work. If the stones are broken while setting the poles, the companies erecting them should furnish new ones; if the pole line is later discontinued, the poles should be entirely removed, below as well as above the ground surface, and where each pole formerly stood, a new flag stone should be furnished and laid by the company owning the abandoned pole line.

EAST SIDE FLOOD PROTECTION.

Much progress has been made upon the plan for abating the East Side flooding nuisance, and the presentation of the complete report need not be much longer delayed. Practically all of the field work and outside investigation has been completed, so that the remaining work will be largely confined to a comparison of the different methods for abating this nuisance, and a study of the cost of each.

EMPLOYMENT OF SUMMER MEN.

The Department of Engineering has inaugurated a plan of employing high school boys and college undergraduates during the Summer vacation, at nominal salaries, which bids fair to be productive of good results. Boys are taken in at the end of the freshman year in the High School, at a salary of $20. per month. At the end of each succeeding year in the High School and college courses, an increase of $5.00 per month is allowed, so that a graduate from college starts in at $50. per month. If he has had no previous experience in the department, his work for the first three months is probationary. If satisfactory at the end of that period, and there is a vacancy ahead, he becomes a permanent member of the force at a salary of $60. per month. For boys who show an early aptitude in their training for the profession of civil engineering, this work for a short period each Summer, offers exceptional advantages. It gives the boys an idea of the practical side of engineering and stimulates their interest in such work. It enables them to apply themselves to better advantage during the remainder of their technical training, and best of all, it permits them in the latter part of their college course, and before it is too late, to specialize in that particular branch of engineering which most appeals to them.

This is the age of the specialist, and the man who early finds the profession in which he can accomplish the most good, and trains all of his energy in that direction, is the man who later will command the high salary and become the captain of industry; the natural and successful leader in the great fight for industrial, commercial and financial supremacy.

One of the chief reasons why many boys make partial or complete failures in their business or professional careers, is because they get started in the wrong direction, and are to a certain extent misfits in the work in which they are engaged. The working day, no matter how limited, is long and monotonous to the man who dislikes his work, but short and never too hard for the man who really enjoys his profession. Most boys can decide after one Summer's work whether they do or do not like the profession of civil engineering. If they do, and their practical work is satisfactory, they should be encouraged, and assisted in that direction as much as possible by further Summer employment. If they do not like the work, or their employers see that their natural talent does not lead them in that direction, the boys as well as their parents should be frankly informed of the fact, so that no further time or energy would be wasted in the wrong direction.

The Department of Engineering has a great many more applications than Summer positions, which vary with the amount of work under contract, but the policy has been and will continue to be, to give first preference to Hartford boys, who intend or at least think they wish to become civil engineers. We do not intend to employ boys with no intention of following this profession as a life work, but who merely seek these positions because of their attractive out door features, or because they want to earn a little money during the Summer vacation.

FORD STREET BRIDGE.

An examination of the parapet walls of the Ford Street Bridge made within the past few months, indicates that something should be done to prevent these walls from ultimately falling into the river. A series of measurements taken, indicate that the vertical face of the parapet walls in several places are over two inches out of plumb in a height of three feet. For the past few years, portions of the stone brackets supporting the walks and parapets above, have broken off and fallen into the river.

A contract was awarded during the past year for renewing the electric wiring and making changes in the ornamental lamps and posts of this bridge, the alterations to the lamps being carried out substantially as recommended by the Municipal Art Society, and a great improvement is noticed between the former and present condition of these lamps.

INTERCEPTING SEWER.

Criticisms are occasionally made that the Intercepting Sewer was improperly designed and poorly constructed; that the condition of Park River is as bad as ever, and that therefore the Interceptor is not accomplishing the work it was intended to do. From my observation of the operation of this system for the past ten years, I believe that it is fully meeting the expectations of its designers and promoters, and that if it had not been constructed, Park River to-day would be little more than a live cesspool, especially through the built up section of the City. Hartford cannot expect a large complicated system of this character, including many difficult river crossings, to operate successfully and continuously without considerable attention. Whenever sewage begins to discharge into Park River through a storm water overflow, it can be assumed that the sewage connection to the Interceptor is partially or wholly stopped. I believe this whole system should be systematically patrolled throughout its entire length; but the inspection, to be successful, should include more than a mere glance into each manhole to see that there is no stoppage in the flow of sewage. A manhole is built, as its name implies, so that a man can enter it and inspect the barrel of the sewer. By the use of two hand mirrors, one upon the surface of the ground, and one at the bottom of a manhole, two men can throw the sun's rays into a sewer and easily inspect it in minute detail for a distance of two or three hundred feet in each direction. This particular feature of inspection has been badly neglected in the past.

A thorough inspection by the reflected sunlight process should be made at least once in three months, and better still, once a month. Breaks like the one just discovered in the Interceptor opposite Hawthorn Street would never be detected by the former method of partial inspection,—not until a break actually occurs and the whole filling over the sewer settles, is there any intimation of weakness in the barrel of the sewer. Sunlight inspections would detect these weaknesses in the Interceptor when they could be repaired at small expense and would prevent obstructions, cellar flooding, and greater expenses for repairs later.

LAUREL STREET BRIDGE.

On June 7, 1907, a contract was awarded to Mr. A. L. Hills for removing and rebuilding the southerly abutment of the Laurel Street Bridge.

The original abutment built about ten years previous had separated and broken away at the southeast junction of the wing wall and main abutment, the space between the two parts slowly increasing until at the time this contract was awarded there was a maximum horizontal separation of six inches, and a vertical one of four inches between the adjoining parts.

The superstructure of this bridge is an extremely heavy one considering its general dimensions, and it is estimated that it weighs very nearly 500,000 pounds.

Before attempting to remove the old abutment, sections of flooring consisting of paving brick and concrete supported on steel buckled plates were removed, and two sets of piling driven, centering about floor beam connection to girder, fifteen feet out from the abutment. These piles when driven extended about thirty feet below the surface of the water. Upon each group of piles was constructed a timber cribbing which was carried up to within three feet of the bottom of the girders. Owing to the close spacing of rivet heads in the bottom of the girders, steel plates were designed of a thickness slightly more than the rivet heads, and having large holes concentric with the rivet spacing, so that when placed against the bottom of the girders an even bearing was insured for the heads of the jacks which were used to raise the bridge.

The raising of the bridge was accomplished by means of several screw jacks having a lifting capacity of thirty tons each. It is doubtful if one-third of this weight could be raised by ordinary means. These jacks were supplemented with two ball bearing jacks each having a capacity of fifty tons. It was found from leveling, that the girders varied in elevation, and levels were taken and the jacking carried out alternately so as to render this difference as slight as possible, and to prevent any undue strain at opposite floor beam connections, caused by the long leverage exerted by the floor beams. During the work, levels were taken almost daily on the piles and on the timber cribbing, which indicated that the timbers forming the cribs although but about six feet in height, settled together almost two inches, the levels on the piles indicating no settlement.

The removal of the old abutment was accomplished very easily as there was no appreciable bond between the courses of stone. After removing the wall and timber grillage which was supported on piling, the contractor was ordered to pull out several of the old piles selected at random, in order that it might be determined how much reliance could be placed upon them for carrying the new and heavier wall. As the only apparatus available for pulling the piles was a simple derrick which probably did not exert a pull of more than six tons, several of the piles failed to respond; five however, were drawn, which varied in length from forty-four to sixty inches, none of them being over five feet.

After driving the new piles, the tops of which were about one and one-half feet below low water level, the concrete foundation was commenced and carried upward to the elevation of the first course of stone in the previous abutment. From there on, the work consisted of brown stone facing, (a large percentage of which was the old work) and concrete backing.

Upon the completion of the abutment, new roller nests were placed under the rocker bearings of the girders, which were raised sufficiently to permit of the removal of the blocking which has been placed between jacks, after which they were lowered and placed in their final position.

The steel superstructure of this bridge through the effects of corrosion and neglect is in a remarkably poor condition. One of the lateral braces was entirely parted, and many of them out of line. A new lateral system was designed and the contract awarded to The United Construction Company of Albany, N. Y., for removing the old system and replacing it with the new one.

The question of maintenance, including painting is taken up at length in another part of my report, but it might be noted that about 3,000 square feet of metal were cleaned and painted by the Bonner & Preston Company of this city, before the completion of the contract for rebuilding the southerly abutment.

The contract was awarded to Mr. Peter Taylor of this city for renewing the wooden flooring to the side walks, at which time the painting above referred to was carried out.

LAYING OF PRIVATE DRAINS.

During the year 1907, sixty-six drain layers' licenses were issued, and three hundred and ninety house drains were laid by these licenses, each being carefully inspected by employees from my department. I consider our present method of accurately locating each of these drains and of later plotting and indexing them in permanent form, of great value.

Since May 15, 1903, the date when the drain layers' ordinance became operative, 1785 house drains have been laid thus averaging 357 per year for the last five years.

MERESTONES.

Considerable progress was made last year in permanently defining street lines with stone monuments. In my judgment, this work cannot be pushed too rapidly, nor completed, as far as the present highways are concerned, too quickly. There is a statute which says that no street is legally established until it has been defined by permanent markers. To a certain extent the monumenting of city streets is a continuous process, as new streets are constantly being laid out and opened. After the work upon the older streets is completed, however, the new work should be comparatively easy, requiring but a small amount of time each year to keep up with the natural development of the street system.

During the year four new stones were cut, and one hundred and seventy-six, which had been previously cut, were set at a total cost of $690.00, making in all 1,043 stones set since 1902.

MULBERRY STREET BRIDGE.

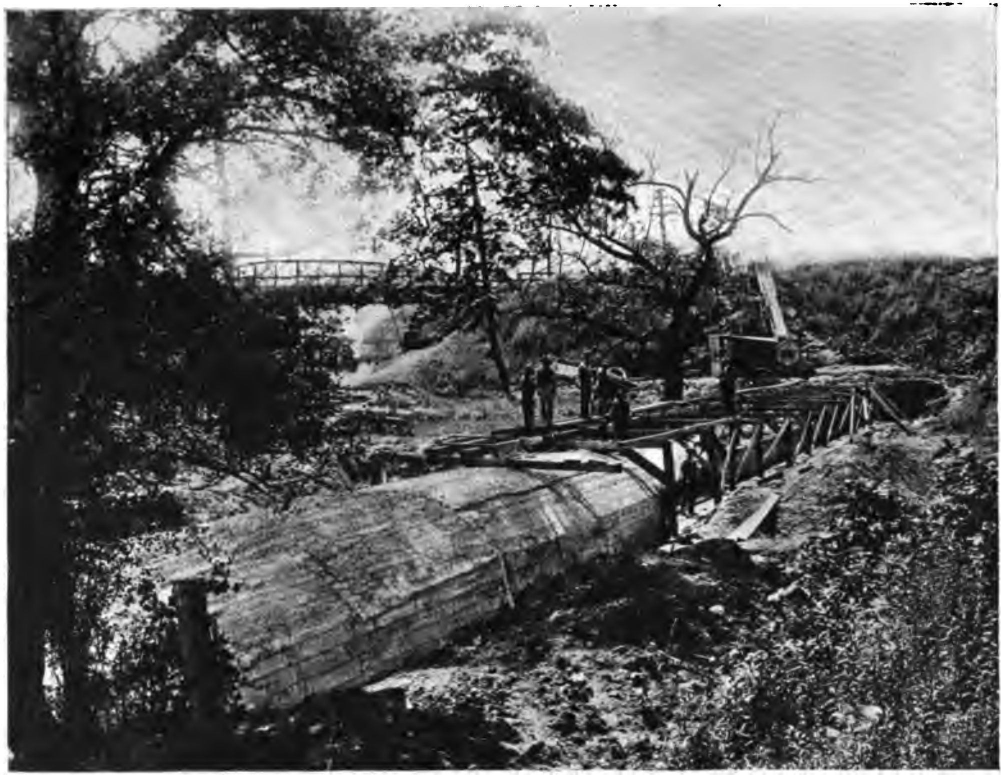
The old Mulberry Street Foot Bridge in Bushnell Park which has been successively patched and altered during the past twenty years, was found to be in a dangerous condition, and condemned, and plans and specifications were prepared under my direction for a new temporary bridge. Owing to the large amount of traffic and the general inconvenience to the public, caused by closing this bridge, special attention was devoted to placing the matter before bidders, in such form that there would be as little delay as possible, and the contract was awarded by Mr. G. A. Parker, Superintendent of Public Parks, to The Berlin Construction Co. The bridge, consisting of two 50-foot spans, was delivered and erected complete, within eight working days, which is without doubt a record for any work of a similar nature ever carried out in this locality, credit for which should be given to Mr. Parker and The Berlin Construction Company.

MUNICIPAL REFERENCE LIBRARY.

It is my ambition to build up, as a branch of the Department of Engineering, a municipal reference library, for I believe it would be of invaluable service to the City of Hartford and its officials. Let me quote an extract from "The Municipal Journal and Engineer," of November 13, 1907, on this subject:

> "As no advance can be made in any department, municipal or otherwise, except by taking advantage of the teachings of experience, and as the wider the experience taken advantage of the more rapid and certain may the progress be expected to be, it seems to be desirable for all who are interested or have a voice in legislation for cities to have access to some such library; and there can be no question that the greatest good would result from the establishing of such in at least one or two large cities in each state, with supplementary libraries in the smaller cities, dealing possibly with local matters for more frequent reference in the every day conduct of affairs."

Several American cities, notably Chicago, New York, Grand Rapids, Baltimore and Newark, have accomplished a great deal of good along this line. The City of Baltimore has perhaps the most complete municipal library of any city in this country, most of the data, reports, etc., being collected



Homestead Avenue Intercepting Sewer Section "A."
View of Completed Sewer.

within the last few years. Here are to be found copies of the charters and ordinances of every other American city, and a great variety of reports upon municipal investigations, all systematically classified and indexed, the sole purpose being "to gather facts impartially and without prejudice."

Municipal problems are continually arising in every city, which require a careful and exhaustive study of the method pursued, and the results obtained, in the solution of similar problems, in other cities, especially in the older and more advanced ones. Such a reference library would be of great assistance at the present time, in the preparation of final reports upon two important matters not yet disposed of, viz:—the resolution upon the subject of sidewalks, curb and gutter stones, which requires among other things "that the president of the Board of Street Commissioners, the Department of Engineering, and the Corporation Counsel, be requested to further inquire into the charter and ordinances relating to such public works in other cities, to the end that a satisfactory plan can be worked out and inaugurated in the City of Hartford." The city wants to know how other cities lay sidewalks, curbing and gutter stones, and how their cost is assessed. It also desires information relating to illuminated sign ordinances, so that this matter may soon be properly disposed of.

The Department now subscribes to a number of engineering magazines, which cost with the binding, about $50. per year. I should like to expend an additional sum of $100. per year for standard publications upon various kinds of engineering subjects and for the collection of special and regular reports from a number of American cities, preferably those as large or larger than Hartford. Thus by degrees and at a moderate cost, we could soon build up a municipal library which would be of great benefit not only to the Department of Engineering, but to every member of the City Government.

PURCHASE OF MATERIALS.

During the past six years, the Department of Engineering has had charge of the construction of $100,000. worth of sewers per year. In view of the magnitude of this work one cannot fail to be impressed with the hand-to-mouth policy followed in the purchase of materials for these contracts. All of this work is done by private contractors, each contract being awarded to the lowest responsible bidder after proper advertisement. A large proportion of the cost of this work is paid for by the abutting property owners, the only exception being in the construction of large interceptors paid for by the city at large, as the benefits are general rather than local.

A great many of the sewer contracts are small, involving expenditures of but a few thousand dollars. The sewer contractors buy the materials where and when they please, often in small quantities, especially when the contracts are small, as they are in many cases. By this policy no materials for sewer construction are kept on hand, in fact the orders for it are not even placed until after the award of the contract. This results under ordinary circumstances, in a vexatious delay of several weeks, waiting for materials with which to begin work. This method from the city's standpoint is as unsatisfactory as it is expensive. I cannot see why the city with its unlimited credit, should not buy in large quantities, directly through the Board of Contract and Supply, all of the materials and supplies used in sewer construction and maintenance, rather than in small quantities through private contractors with limited capital and credit. I cannot see any reason or excuse why the city should pay a second commission on this material to each sewer contractor in addition to the regular dealers' commission. By purchasing directly from the manufacturers or dealers, the City would not only save the second profit now paid the sewer contractors, but it would obtain the further and greater advantage of buying in large quantities with a large financial backing. In my judgment, all vitrified tile, brick, cement, sand, crushed stone, manhole frames and covers, lumber, etc., used in sewer construction, should be purchased by the City, in large, preferably yearly quantities. During the latter part of each construction season, the Department of Engineering should make requisition on the Board of Contract and Supply for the material needed for the next seasons' work. If the Board of Street Commissioners would pool their interests with the Department of Engineering in the purchase of supplies, even better figures would be obtained and greater economy would result.

While the crushed stone and sand used in the construction and maintenance of the streets of Hartford are purchased in large quantities, under contract, a great deal of the material used in the construction and maintenance of catch basins, sewer manholes, bridges, culverts, etc., in charge of the Street Department, is purchased in small quantities and undoubtedly at higher prices than if bought in larger quantities. These two departments have charge of an average annual expenditure of about $500,000, and I believe that a great financial saving would result in carrying out the policy here indicated. A further advantage would obtain from the purchase of the materials in advance of the commencement of the work, thereby eliminating the present vexatious delays in waiting for deliveries oftentimes greatly interfered with in transit.

RADII AT STREET INTERSECTIONS.

According to past custom, every order passed by the Court of Common Council for the establishment of curb and gutter stones contains the following clause: "At the intersections of other streets the curb stones to be set around the corners with circular stones of at least six feet radius."

While several cities still adhere to small radii for curb lines at street intersections, as seen in Scranton and Wilkesbarre, Pa., and upon the older streets of Columbus, Ohio; Milwaukee, Wisconsin; and Minneapolis, Minnesota; a great many have within the last few years adopted easier and more graceful curb corners, using as a standard, radii from ten to fifteen feet.

The modern tendency is toward more liberal roadways at street intersections, and in my judgment, the radii of the curb corners of Hartford's streets should be increased from six to ten feet, or better still, left to the judgment of the Board of Street Commissioners. I say ten feet merely because the majority of our streets are fifty feet in width with ten-foot sidewalk spaces. There are many instances either at oblique or acute angled intersections where neither six nor ten foot radii would best conform with the local conditions. If therefore, the decision was left to the discretion of the Board of Street Commissioners, appropriate curves for each particular corner could be depended upon.

The assumption that more room is needed at street intersections is perfectly logical, for the volume of vehicular traffic is under ordinary conditions greater, and the opportunities for accidents correspondingly increased. With sharp curb corners, vehicles with long wheel bases cannot navigate the turns without throwing the front end of the vehicle well out into the cross street to clear the rear end. With liberal curb corners, the turn can be made and still keep all parts of the vehicle equi-distant from and parallel to the curb lines, thus actually untilizing less of the intersection and not interfering with vehicles coming in the opposite direction.

Street intersections with liberal curb corners look more graceful and tend to encourage a more strict observance of the rules of the road. I think it is generally admitted that the street intersections upon Pearl Street were greatly improved by the introduction of easier curb corners in 1903. The contrast at Lewis Street, which formerly had very sharp corners, is especially noticeable. Likewise I believe the new corners ordered for the intersections on Asylum Street between Main Street and Spruce Street will be a great improvement over the present corners.

The only possible objection I can see to this change in the treatment of street intersections would be the natural increased tendency of careless drivers to make the turns more speedily. I think the traffic regulations of the police department will adequately provide for this possible objectionable feature.

REGULATION OF SIDEWALK SLOPES AND LINES.

In the formal orders of the Court of Common Council for the laying of sidewalks, the material, width and location of the hardened portion is specified, as well as the rate of slope from the curb line toward the street lines.

These orders should very properly specify the material, width, and slope of the hardened portion, but the location of the sidewalks and the rate of slope upon the turf borders upon each side of the flagging should, in my judgment, be left to the discretion of the Board of Street Commissioners or the Department of Engineering. Upon newly opened streets where there are no trees, and the adjoining land closely corresponds with the street grade, there is no difficulty in carrying out the orders of the Council as now drawn, but upon the older highways, it is almost physically impossible to exactly adhere to the grades and alignment as ordered. It is not uncommon upon some of these streets to find a line of finely developed trees, out of parallel with the curb line ordered, and in some cases the ground so mounded up around the base of the trees, that a strict observance of the Council orders would destroy the appearance, and possibly the life of the trees. While I believe that Council orders are intended to be interpreted with a reasonable amount of discretion, I do not like to put my department in the position of even technically violating them, and therefore suggest that a change be made. It will naturally be replied that these orders are drawn in my office and should therefore be technically correct. True, but the lines selected, for the sidewalks especially, are average lines which best fit the local conditions for the entire length of the streets. To describe them in minute detail, as is necessary for the layout of street lines, which define private property, appear to me to be as unnecessary as the publication of their layout would be expensive for the City. I thing the development of each street between the street or fence lines should largely be left to the judgment of the officials in charge of such work after the Council has determined the sidewalk and roadway widths, and the materials to be used in hardening them.

The development of New Britain Avenue between Cemetery Brook and White Street is a practical illustration of the point I am making. Between Cemetery Brook and Oliver Street the property upon the westerly side of the street is ten or fifteen feet higher than that upon the opposite side, and in setting the curbing these extreme local conditions were favored as far as possible by the use of a side hill section, with the westerly curb a foot higher than the easterly one. Between Oliver Street and White Street exactly opposite conditions obtain. Here the easterly side is considerably above the westerly side, and a similar treatment had to be used. Now the sidewalk order for New Britain Avenue specifies that the slope of the turf border between the curbing and outside edge of the sidewalk proper, shall be at the rate of one inch per foot, and for probably 90 per cent, of its entire length, this rate is entirely appropriate, but for the two limited sections above specified, this slope must be modified to possibly six inches instead of one inch vertical to every foot horizontal, otherwise the abutting property will be greatly injured, aesthetically and financially. While I do not believe in laying sidewalks too high above the curbing, as seen upon the westerly side of Spring Street between Church Street and Myrtle Street, and upon the southerly side of Farmington Avenue opposite the Cathedral, because of the possibility of accidents and damage suits against the City, there are a great many cases where a limited modification of the customary cross slope is not only desirable but absolutely essential.

SECTION MAPS OF THE BOARD OF ASSESSORS.

For several years past my department has had charge of keeping the property maps of the Board of Assessors, some one hundred and thirty-five in number, up to date by plotting each year before October 1, all buildings built within the city during the previous year. After this work is completed, the ownership on the maps is compared with that on the assessor's books, and all discrepancies between the two are corrected. This work is handled very successfully and economically in connection with that of staking out building and veranda lines, later described in this report. Owing to the frequent and continuous use of these maps during the past decade, by people searching titles, they have become so badly worn that steps have already been taken to preserve them. During the past Winter my department has completed a full set of tracings which are to be kept up to date, as the maps have been, and from these tracings a set of paper or cloth prints will be made each year for general use in the Assessor's Office. The original maps will then be filed away and carefully preserved.

SEWERS CONSTRUCTED IN 1907.

The sewer work for 1907 stands out conspicuously in the development of the drainage system of the City of Hartford. Its prominence is not especially marked by the mileage or cost of the work although in comparison with that of former years, it is well up to the average, but rather by the completion of several local systems which furnish sewerage facilities for large districts heretofore largely undeveloped for lack of these sanitary conveniences.

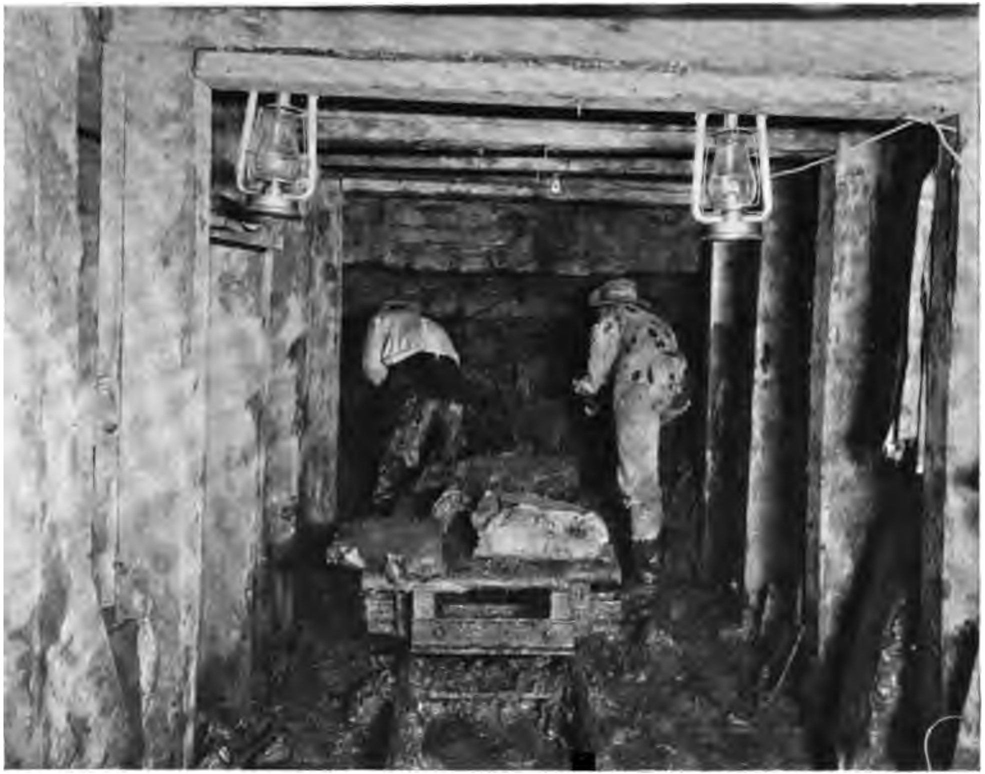
For years there has been a demand for sewers in the northerly part of the city, and the large Windsor Street Sewer System commenced in 1906 and completed in the early part of 1907, will largely satisfy those demands.

This system cost $51,974.77 toward the cost of which the City contributed $20,940.22, considering the main outlet through Windsor Street and Windsor Avenue as an interceptor.

The Elizabeth Park Sewer System completed at a cost of $42,765.70 will help develop the large area between Girard and Prospect Avenues and Fern and Asylum Streets.

One of the most important of the smaller sewers was that built in New Britain Avenue, to furnish an outlet for the sewage from the Tuberculosis Hospital on Cedar Mountain. The drainage from this worthy institution formerly passed through two septic tanks, located on the side hill to the east, then on to a small filter bed, apparently too small and inadequate for the work required. The effluent, which appeared impure and injurious, but was claimed by the doctors in charge of the hospital to be perfectly harmless, entered a branch of Cemetery Brook and passed down through its valley to Park River. While the presence of the drainage from this Hospital into Cemetery Brook may have been perfectly harmless, it was impossible to so convince the people in this growing neighborhood, and all are to be congratulated that their anxiety over this matter has been wholly relieved by the construction of the new outlet. Other new sewers were completed in Zion Street from Ward Street southerly for about 530 feet; in Allen Place, from a point 475 feet west of Broad Street, westerly for 264 feet; in Lincoln Street from Affleck Street easterly for 205 feet; in Campfield Avenue from Preston Street to Barker Street, about 1379 feet; in Edgewood Street from Greenfield Street northerly 316 feet; in Edgewood Street between Albany and Homestead Avenues, about 650 feet; in Homestead Avenue between Cabot and Sigourney Streets, and in the southerly end of Edgewood Street, about 699 feet; in Oakland Terrace between Albany Avenue and Greenfield Street, about 900 feet; in Greenfield Street east of Vine Street, about 436 feet; and in a private street running westerly from Franklin Avenue, about 550 feet; the last three sewers being built and paid for by private parties under licensed drain layers regulations.

Of the reconstruction work, the new sewers in Asylum Street, Ann Street, and Allyn Street known as the Ann Street Sewer System were practically completed at a cost of $22,186.15. This system is intended to gradually replace the first sewer system built in Hartford in 1844, and running largely across private property in this vicinity. During the past



Homestead Avenue Intercepting Sewer Section "B" in Tunnel
View showing excavation and method of timbering.

decade there have been a number of complaints from cellar flooding due to the inadequacy of this old system, so that a great improvement is expected from the new system, which is built much deeper and larger than the old one. It will be some time, and will require a large amount of work to get the buildings in this district disconnected with the old, and connected with the new system. Until this is accomplished, the old sewers cannot be entirely abandoned.

The old sewer crossing private lands between Park and Jefferson Streets near the Old People's Home, which was largely of wooden box construction, and entirely inadequate, was replaced by a vitrified tile sewer.

The first section of the large Homestead Avenue Intercepting Sewer System was started in 1907, and about 900 feet of horseshoe section ten feet in diameter has been completed in Gully Brook Valley between Edwards and Walnut Streets.

The total length of sewers built in 1907 was 3.38 miles as against 5.00 miles for 1906. The cost of the work for 1907 was $77,376.72, and for 1906, $66,512.00.

The total length of sewers in use on April 1, 1908 is about 115.3 miles. This consists of 55.6 miles of brick sewer; 54.8 of vitrified tile; 1.83 of cement tile; 1.98 of cast iron; one section of ancient Bolton stone box, and a small amount of reinforced concrete conduit.

The details of the sewer work for 1907 are given in the sewer table accompanying this report.

SEWERS PROPOSED FOR 1908.

At the present time it looks as though the construction of local sewers in 1908 would be small in comparison with the work of former years. A contract for a sewer in Edgewood Street, between Albany Avenue and Greenfield Street will soon be awarded, but aside from this street there are no petitions before the Council for sewers in city streets.

The contract for the second section of the Homestead Avenue Interceptor has been awarded, and it is well under way. During the year the first two sections of this large system will be completed, involving an expenditure of over $80,000.00. Both sections involve difficult work, especially the number two tunnel section, through heavy clay soil from twenty to thirty-five feet below Homestead Avenue.

SEWER MAINTENANCE.

The maintenance of a sewerage system after once installed is second only in importance to the adequacy of the design and the integrity of the workmanship upon its construction. No matter how carefully planned or how thoroughly constructed, every sewer system needs constant attention to see that it is kept free from obstructions and in proper working order, ready for emergencies which are sure to come in the form of excessive rain storms. No municipal function is of greater sanitary importance to a city or more closely associated with the health and happiness of the people than a first class sewerage system. It helps to minimize the death rate and thus advertises the city far and wide as a healthful city to live in, and an attractive place to do business in. No man, solicitous for the welfare of his family, fails to inquire about the death rate per thousand when in search of the ideal residence city in which to locate his permanent home. Some people entertain the false idea that after a sewer is once built and covered up it should last forever, and that very little attention need be directed toward its maintenance and operation. While the topography of Hartford is unusually favorable for the successful operation of its sewerage system at a minimum cost, there are several sections where the sewers have such light grades that they need considerable attention to keep them in first class condition. While I do not believe that the City should act as insurer against stoppages or interruptions to the service from accidental causes, I do believe that all reasonable means should be exercised to keep the public sewers clean and wholesome. If the property owners pay for sewers which are none too large, when clean, to adequately drain the districts which they serve, they are entitled to their free and unobstructed use at all times. It is unfair to them, and a discredit to the city to permit them to partially fill up with sludge, dirt, macadam, etc., and when most needed, during hard storms, to find them partially inadequate, and cellar flooding inevitable.

There are a few sewers in Hartford to-day in exactly this condition. These sewers are located in streets with light grades where the velocity of the sewage is insufficient, except when running full, to move the heavier particles of dirt and stone which get into them. The result is a gradual collection of deposit, in some cases extending over a number of years, and a consequent reduction in the capacity and usefulness of these sewers. From a sanitary standpoint this condition of affairs is objectionable, and from a business standpoint it is open to criticism because it represents a fixed investment, in proportion to its extent, from which neither the city, nor the abutting property owners are getting adequate returns.

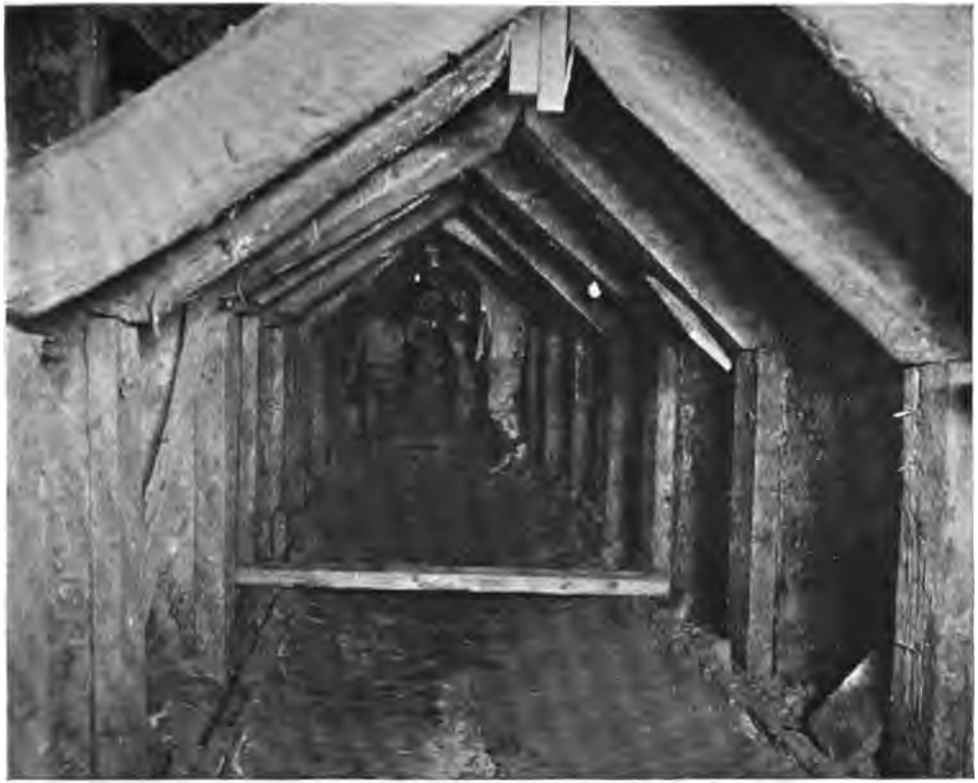
I cannot account for some of the cellar flooding which is reported to my department after hard storms except upon the assumption that the sewers are not running full capacity. The sewers are designed to carry the ordinary sewage and storm water for an assumed maximum rate of rainfall intended to be sufficient for New England storms. If the sizes are ample, and I believe that in most cases they are, more attention should be directed toward keeping them clean and free from ordinary obstructions. This can be accomplished in two ways. In the first place all macadam should be intercepted by and removed from the catch basins at the curb lines before it accumulates sufficiently to overflow into the sewers. This is primarily what catch basins are for, and they are usually constructed with this object in view, by building the bottoms a few feet below the pipe outlet to the sewer, to collect and hold the dirt and macadam until removed. Naturally very little of this material collects in some basins where the street grades are light and the contributary drainage areas are small. In other cases where the street grades are steep and the areas drained are large, the accumulation of dirt and macadam is quite rapid. If therefore, all basins are built of the same capacity and spaced equi-distant, with no reference to the street grades or drainage areas, some will have to be cleaned frequently, other quite infrequently.

The only way of telling how quickly each basin will fill and need cleaning is to keep a record of their condition, particularly after each storm, or at each cleaning. If the cleaning of all basins is to be accomplished at definite intervals with no reference to their location, then much more attention should be given to the design and location of each particular basin. The same study of areas to be drained, and of street and surface slopes must be made to determine the sizes and economic location of catch basins as are now given to the design of sewer grades and sizes. If this policy should be adopted it would undoubtedly be found that no arbitrary spacing or adherence to any standard size would accomplish the desired results. It would be found that either the distance between basins or the size of the basins would have to be varied in accordance with local conditions.

A proper solution of this problem would, in my judgment, relieve the sewer system of nine-tenths of the present trouble from the deposit of heavy materials. But even with this source of trouble removed, a limited amount of material would find its way into the sewer system through the holes in the ventilating manhole covers, or from the misuse of closets by careless tenants. The only way to remove such material is by means of sewer cleaning devices of by flushing, depending for the success of either method upon the size and conditions of each sewer.

STAKING OUT BUILDING AND VERANDA LINES.

The work of defining building and veranda lines for each building before it is started involves a large amount of work each year for the Department of Engineering. This practice



Homestead Avenue Intercepting Sewer Section "B" in Tunnel.
View showing Knee bracing to prevent settlement of caps, and concrete invert in place.

is however, one of the best yet inaugurated because it notifies the builders at the start, of the exact location of the legally established lines. When a permit is issued by the Building Inspector, duplicate cards are made out for the inspector's file and that of the Department of Engineering, giving the name of the owner, the location of the property, etc.

When the builder is ready to proceed, stakes are set upon each side of the lot and marked B. L. (building line), and V.L. (veranda line). After a few weeks the site is again visited to see if the building conforms with the lines as designated. If it encroaches, the Board of Street Commissioners are notified of the violation, and steps are at once taken for the removal of the encroachment. Usually when this second visit is made by employees of my department, the building is sufficiently advanced so that measurements can be taken of its exact location upon the lot, and of its shape and dimensions. Later these measurements are used for plotting all of the buildings erected during the year, upon the Assessor's property maps.

STATE HIGHWAYS.

State highways were completed last year under the supervision of the State Highway Commissioner, upon Franklin Avenue from the City line northerly for 1340 feet; and upon the new section of Albany Avenue between Baltimore and Scarborough Streets.

Upon Franklin Avenue the Street Railway Company first adjusted their double tracks to conform with the grade approved by the Highway Commissioner, and then carried on its proportion of the macadam work simultaneously with that of the Board of Street Commissioners, upon each side of the tracks. The cross-sections improved under this contract consists of a central macadam strip thirty-nine feet in width, (nineteen of which was paved by the Street Railway Company), with five and six foot shoulders. This contract was carried out by the Board of Street Commisioners, the lowest bidder, for $4,462.60.

The work upon Albany Avenue was similar to that upon Franklin Avenue. Before the macadamizing was started, the Railway Company laid a new single track in the center of this roadway, crossing both bridges as provided for in the Council grant for this extension. The contractor for the state highway macadamized the Street Railway Company's nine foot strip in the center.

The cross-section as completed consists of a central macadam strip twenty-seven feet in width, (nine of which was paved by the Street Railway Company), with nine foot shoulders, and six foot gutters on each side.

The Albany Avenue State Highway was 1919.6 feet in length, and with underdrains, cobble gutters, etc., cost $7,-635.39. The contract was executed by A. C. Sternberg & Son, the lowest responsible bidder.

Plans have been made and filed with State Highway Commissioner James H. MacDonald, for the improvement of Asylum Avenue, between the Connecticut Institute and Industrial Home for the Blind, and Prospect Avenue, during the season of 1908.

During the session of the last legislature, the State Highway law was so amended that hereafter Hartford will pay one-quarter instead of one-third as formerly, of the cost of State Highway work.

STREET EXCAVATIONS.

As long as a city continues to grow, street excavations will continue to be made. Their presence, although objectionable, indicates a healthy growth and progressive development. Stop digging up city streets, and the city stops growing, and lapses into a decadent state. If street excavations must be made, and I can see no way of avoiding them, two important features should be observed by those responsible for carrying out such work so as to interfere as little as possible with the ordinary street uses.

First, the work should be executed as rapidly as is consistent with first class construction.

Secondly, the trenches should not be mounded up in axle breaking fashion and left for vehicles using the roadway to pound them down to the former street level. In most permits for the opening of city streets, there is a condition which specifies that the material excavated shall be put back in as good condition as originally found. Now if the contractors, licensees, etc., who open the streets cannot properly compact the material when putting it back, and I must frankly confess that it is not as easy to do this with Hartford soil as some people imagine, they should be required to finish the trenches level with the adjoining street surface and properly cover the same with fine stone so that the entire roadway surface could be used as soon as the back filling was completed. If the trenches settle, as they usually will, compel the contractors, corporations, and individuals opening the streets, to put on additional fine stone, every day if necessary, until the final compression is made. I don't see why it should be the city's business to watch these trenches to see that they are properly maintained to facilitate travel and to avoid accidents. This should be the business of the persons securing the permits to open the streets, and they should be held strictly accountable for their condition until relieved of their obligation. Nothing is more objectionable than bumping along over a lot of cross trenches, raised several inches above the adjoining street surface. Frequently these trenches are covered with coarse crushed stone, as uncomfortable to travel over as it is disasterous to rubber-tired vehicles.

The Department of Engineering is just as guilty as the rest in this matter, for we have made it a practice in the past, to leave the sewer trenches in the contracts carried out under our supervision, high enough to provide for settlement to the original surface, and we have relied largely upon vehicular traffic to assist in their final compression.

This year I propose to try the method I am here advocating, and if all other contractors, corporations, and individuals opening the streets can be persuaded, or compelled if necessary, to follow this practice, I think there will be much less dissatisfaction with this heretofore disagreeable feature of our street surfaces.

STREET RAILWAY CONSTRUCTION.

During the year 1907, more Street Railway Grants were approved by the Court of Common Council for new and reconstruction work, than in any previous year in the City's history.

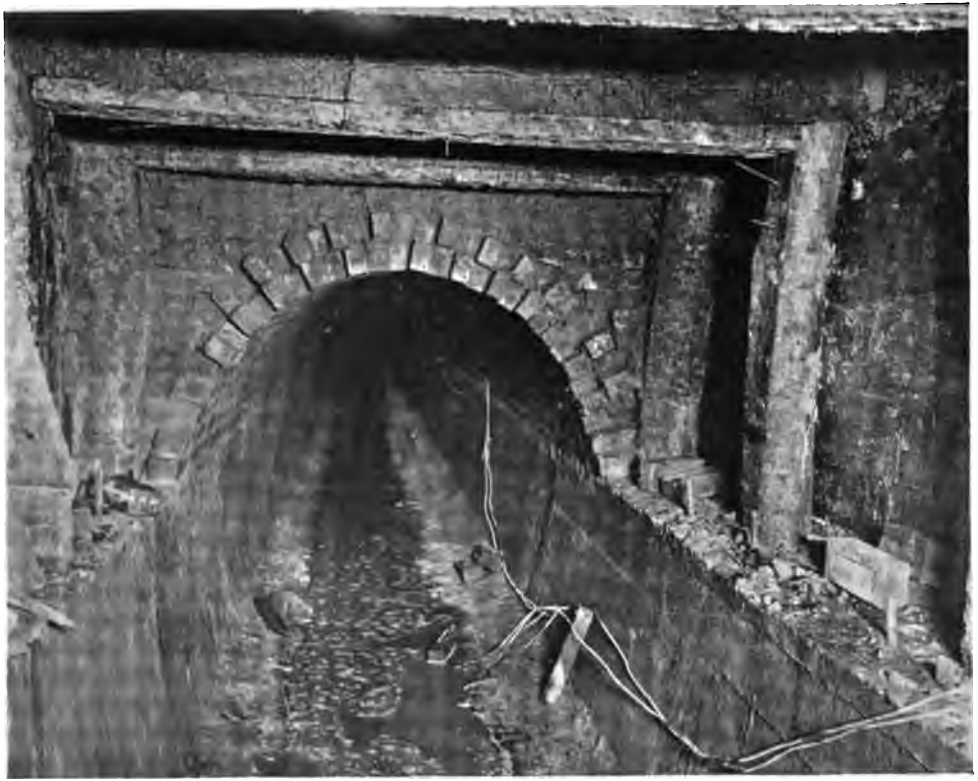
Of those authorized, the following contracts were completed during the construction season: Washington Street and New Britain Avenue were double tracked from Retreat Avenue to Newington Avenue. This improvement has been badly needed for a number of years and will now amply provide for the rapidly increasing demands of the southwesterly section of the city. The old single track occupied a side location upon Washington Street and for a considerable distance upon New Britain Avenue. The new tracks occupy a central location for the entire distance, an improvement in location which I think is far superior to the old one and will be much appreciated.

Trinity Street was double tracked during the year, thus furnishing additional trolley facilities for the shop district.

A new single track was also laid on Albany Avenue over the new highway between Baltimore and Scarborough Streets.

Of the reconstruction work, the double tracks upon Windsor Avenue between the Tunnel and Canton Street, and the single track on Asylum Street between Main Street and Ann Street were completely rebuilt of heavier and more durable construction.

Trolley Grants approved by the Court of Common Council in 1907 but not yet carried out, provide for the following work. The double tracking of Ford and Pearl Streets; around City



Homestead Avenue Intercepting Sewer Section "B" in Tunnel.
View showing concrete invert and side walls, and brick arch.

Hall Square, and down State Street to the new Boulevard. The renewal of all tracks on Asylum Street between Ann Street and Spruce Street; the double tracking of Albany Avenue between Lenox Place and Blue Hills Avenue; the completion of the single track line on Albany Avenue from Blue Hills Avenue to the Bloomfield Town Line near the Handicraft Schools; the construction of new double tracks on Capitol Avenue between Main Street and Trinity Street; the double tracking of Capitol Avenue and Laurel Street between Sigourney Street and Park Street; the double tracking of Park Street between Sisson Avenue and Prospect Avenue, and the construction of a new double track line on Broad Street between New Britain Avenue and Capitol Avenue. On account of the general business and financial depression, only a portion of this work will be completed this season. After all of these lines are completed, the trolley service of Hartford should, be greatly improved, but the mere construction of trolley lines does not satisfy the people or indicate the policy of the operating company. The real test is the character of the service maintained, and if this is insufficient to meet the natural demands of the public, or if the schedule is irregular and uncertain, the people have just grounds for complaint, and general dissatisfaction follows.

STREET SPRINKLING FOR 1907.

The following table shows the length in feet and miles; the total cost and cost per mile for each season of street sprinkling during the last nine years.

Year.	Feet.	Miles.	Cost.	Cost per mile.
1899	234,273	44.37	$20,886.17	$470.73
1900	250,270	47.40	26,368.84	556.30
1901	246,874	46.75	22,912.05	490.09
1902	254,499	48.20	23,574.94	489.10
1903	262,844	49.78	24,424.88	490.56
1904	267,413	50.64	24,937.30	492.44
1905	269,636	51.07	25,149.56	492.45
1906	278,356	52.72	17,696.37	335.66
1907	288,101	54.57	19,323.62	354.11
	2,352,266	445.50	205,273.73	4,171.44
Average,	261,363	49.50	$22,808.19	$463.49

The length in miles of each classified width of streets sprinkled since 1899 is as follows:

Year.	16	20	25	30	35	40	45	50	60	Miles.
1899	.24	5.17	11.33	18.96	3.96	4.23	.29	.11	.08	44.37
1900	.24	1.07	16.25	18.69	5.42	3.19	2.35	.11	.08	47.40
1901	.24	1.61	16.21	18.03	5.45	2.94	2.08	.11	.08	46.75
1902	.24	1.67	16.43	19.51	5.14	2.94	2.08	.11	.08	48.20
1903	.24	1.67	16.57	20.21	5.49	3.08	2.33	.11	.08	49.78
1904	.24	1.87	16.09	20.22	6.34	3.34	2.33	.11	.08	50.64
1905	.24	1.87	16.02	20.70	6.36	3.35	2.33	.11	.08	51.07
1906	.24	1.87	16.54	21.84	6.36	3.35	2.33	.11	.08	52.72
1907	.24	1.87	18.57	22.01	6.01	3.35	2.33	.11	.08	54.57
	2.16	18.67	144.01	180.17	50.53	29.77	18.45	.99	.72	445.50
Aver.	.24	2.07	16.00	20.02	5.61	3.30	2.05	.11	.08	49.50

TESTING LABORATORY.

No matter whether the City continues its present policy of purchasing materials for its public works indirectly through contractors, or decides to buy directly from the dealers, in my judgment, a testing laboratory should be equipped and maintained to determine by comparative tests the fitness of the materials furnished, and to see that they strictly comply with the specifications. After letting large contracts, my office is besieged with agents trying to introduce their "best on the market" goods. Our policy has been to avoid the naming of any particular brands to the exclusion of all others, but to specify certain definite standards which each material furnished should comply with. This is all right as far as it goes, but it is a very difficult matter to determine whether the city is actually getting what it specifies, without the assistance of careful tests. I believe that all of the cement, sand, gravel, crushed stone, concrete, tile, brick, paving blocks, etc., used for the construction of sewers, culverts, bridges, retaining walls, paving, etc., should be tested before being used. I do not like to assume the responsibility of carrying out public contracts involving the expenditure of hundreds of thousands of dollars in public works, some of which, at least, are intended to endure for all time, and not know more about the materials we are using than we have any way of knowing now.

There are three essential requisites to success in the execution of public works. First, a definite knowledge of the requisite standard for the various materials used in each particular class of work. Secondly, means for quickly and thoroughly ascertaining whether the materials submitted do or do not comply with the fixed standards or specifications. Thirdly, knowledge as to how these materials can best be combined in the structure planned, so as to obtain the greatest strength and durability at the least possible cost. In my judgment, the equipment of a suitable testing laboratory for my department, would cost from $500 to $1,000. It could be started in a small way with the idea of testing only the most important materials used, and later enlarged to include the testing of coals, paints, oils, asphalts, etc.

The Department of Engineering now has under way two sewer contracts involving an expenditure of over $80,000. New pavements costing from $40,000 to $50,000 are to be laid this year, and in my judgment the city could well afford to pay $1,000 for the equipment of a testing laboratory, if used only for this one reason. The satisfaction of knowing positively that public contracts are being honestly and efficiently executed is something which cannot be measured in dollars and cents. The uncertainty and anxiety of not having definite knowledge that public contracts are being strictly complied with, place burdensome responsibility upon the officials in charge.

I consider the equipment and maintenance of a testing laboratory, in connection with my department, the most important recommendation I have to offer at this time, and I hope that you will give it that careful consideration which its relative importance demands.

WIRES UNDERGROUND.

During the past year a new ordinance has been passed by the Court of Common Council providing for a continuation of the removal of overhead wires outside of the original arbitrary one-half mile district to the north, south and west of City Hall. In my judgment, the new ordinance is far superior to the previous one, as the work is not confined to any particular district. The Board of Street Commissioners are authorized and empowered to remove the overhead wires from a maximum of two miles of streets per year anywhere within the city limits, after a public hearing has been held of the various public service corporations interested or affected by the proposed ordinance.

The confinement of this splendid work to an arbitrary district, as previously done, often imposes hardships upon the overhead wire companies, and does not always accomplish the best results from the city's standpoint. Arbitrary districts frequently contain short streets where the number of wires are so limited that they are neither unsightly nor dangerous. To order such wires underground imposes a hardship upon the companies because the interest on the investment for underground construction is often much greater than the income from the local service rendered. From the city's standpoint there are usually some streets outside, in even worse condition than many of those within arbitrary limits, and the policy of the city should be to first remove the overhead wires from the streets where they are most unsightly and dangerous. These streets are usually the ones where the companies maintaining overhead wires can best afford to duct them, so that there is a double gain in working under the new ordinance which leaves the decision of the streets to be cleared of these obstructions each year, to the discretion of the Board of Street Commissioners.

CONCLUSION.

In closing my first annual message as a separate department of the City Government, I wish, on behalf of myself and of my employees, to take this opportunity of thanking the members of the Court of Common Council for their expression of confidence in the organization of the Department of

Engineering, and for their unanimous support of the passage of the ordinance regulating the salaries of the employees thereof.

Respectfully submitted,
FREDERICK L. FORD,
City Engineer.

File Pam. Box TE

Box
TE
25

FIFTH ANNUAL REPORT

OF THE

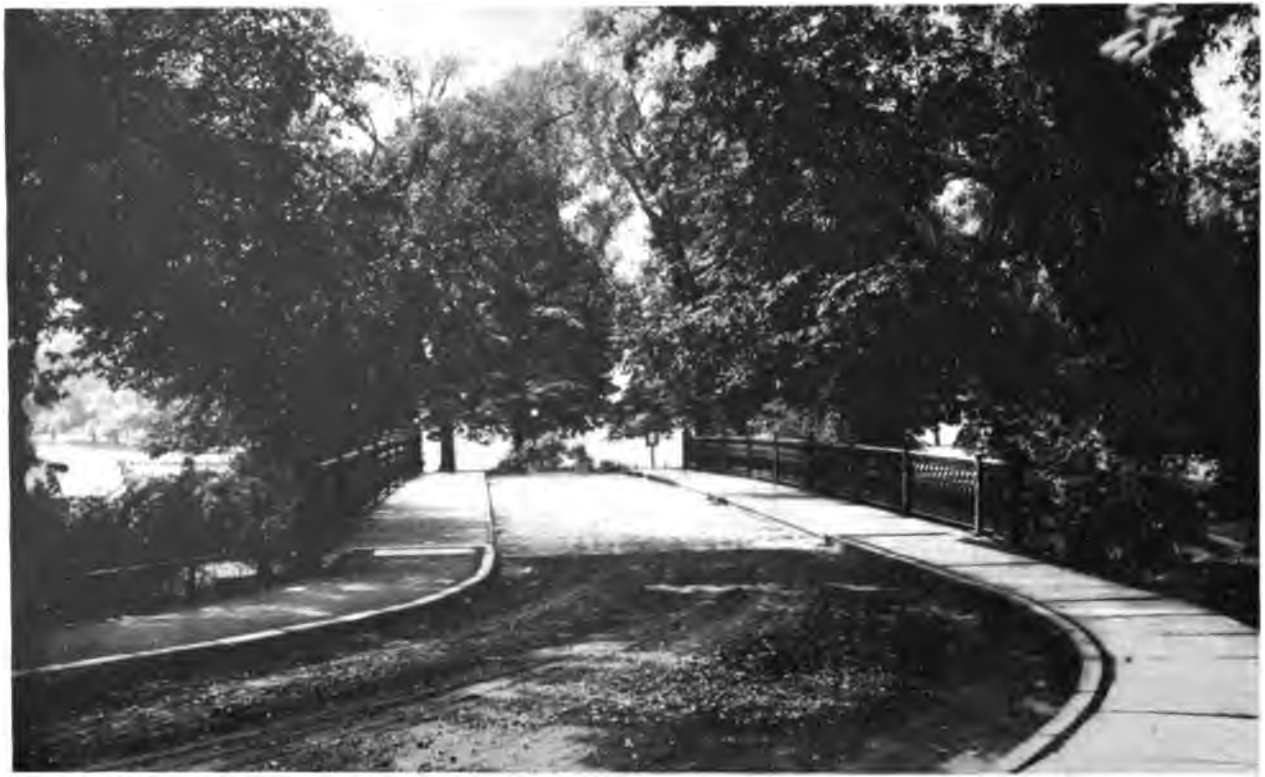
DEPARTMENT OF ENGINEERING

TO THE

COURT OF COMMON COUNCIL

HARVARD UNIVERSITY
DEPARTMENT OF
LANDSCAPE ARCHITECTURE

CITY OF HARTFORD, CONNECTICUT
FOR THE YEAR ENDING MARCH 31, 1912



NEW BRIDGE OVER PARK RIVER IN BUSHNELL PARK
Looking south

FIFTH ANNUAL REPORT

OF THE

DEPARTMENT OF ENGINEERING

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONNECTICUT
FOR THE YEAR ENDING MARCH 31, 1912

[illegible] 23 Nov 1912
HARVARD UNIVERSITY
DEPARTMENT OF
LANDSCAPE ARCHITECTURE
Gift of C. P. [illegible]

ORGANIZATION

ROSCOE N. CLARK, City Engineer.
HERBERT G. CLARK, Assistant City Engineer.
ARTHUR J. SCHOENFUSS, Chemist.
JOHN P. MURPHY, Division Engineer.
WILLIAM T. TAYLOR, Division Engineer.
EDGAR T. DUNCAN, Assistant Engineer.
WILLARD S. BREWER, Assistant Engineer.
ROBERT J. ROSS, Assistant Engineer.

ALDEN WELLS.
WILLIAM H. MOODY.
HENRY I. SKILTON.
THOMAS ROWLAND.
GEORGE ANGELO.
PAUL P. KIMBALL.
E. SELDEN GEER, JR.
KARL L. SOMMER.
ALBERT J. TAFT.
JOHN V. SPRAGUE.
FLORENCE L. CHAPIN.

REPORT

To his Honor the Mayor, and to the Honorable Court of Common Council of the City of Hartford.

Sirs: —

I have the honor to submit the following report of the work of the Department of Engineering for the year ending March 31, 1912.

The duties of the Department of Engineering include the designing and superintending of construction of new bridges, retaining walls, sewers, improved pavements, and such other public engineering works as the Court of Common Council may authorize; the making of such surveys, plans, profiles, estimates, statements, investigations, and descriptions as the city government or any of its departments or committees may require; the custody of all drawings relating to the above mentioned work; the testing of all materials entering into municipal construction work, or used by the different departments for any purpose.

In order to facilitate the work of the department, several branches or divisions are maintained, each under the charge of a division engineer to whom is referred all work pertaining to his special branch of the service, for example,— to the sewer division is entrusted the designing of all sewers, the preparation of their layouts, the detailing of the schedules of their assessments under instructions of the Board of Street Commissioners, and the supervising of their construction; the street and park division makes all surveys for the layout or change of street, building and veranda lines and grades, prepares their descriptive layouts for submission to the Court of Common Council, and prepares the detailed schedule of their assessments, also under instructions from the Board of Street Commissioners.

SEWER WORK IN 1911.

During the past year 3.2 miles of sewers have been constructed at a cost of about $114,000, being slightly less both in length and cost than during the year 1910. The largest item is the East Side Intercepting Sewer of which 4,800 lineal feet were constructed at a cost of $86,500. The section of this sewer built the past year extends through Charles, Talcott, Front, Morgan, Market, Pleasant, Village, and Avon Streets and completes the sewer with the exception of a short section to be built in Keeney Lane in connection with the proposed pumping station. Fourteen sewers of vitrified tile aggregating 5,500 lineal feet and amounting to 33% of the total length for the year were built for private parties under the drainlayers' rules.

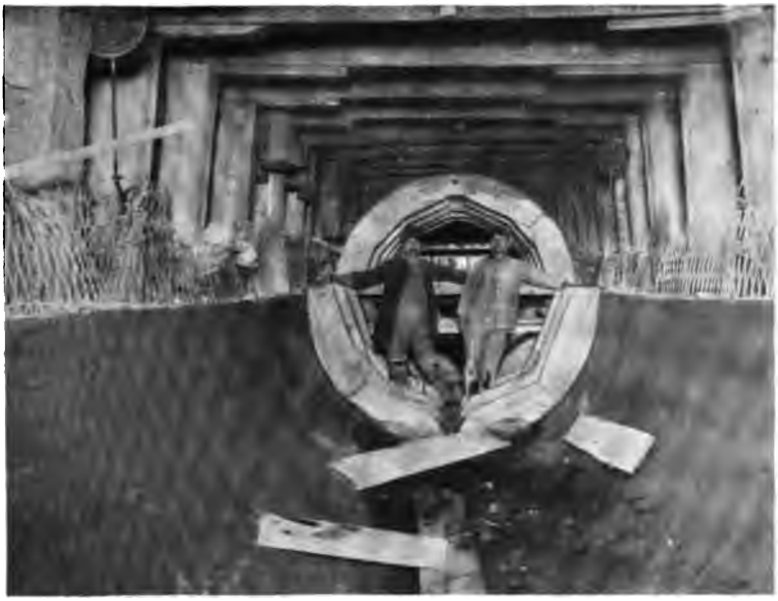
SEWERS PROPOSED FOR 1912.

The work contemplated for 1912 includes the completion of the East Side Intercepting Sewer and the construction of the pumping station in connection therewith; the completion of the sewer in Albany Avenue and Scarborough Street, and the Chadwick Avenue Sewer, both of which were started late in the fall of 1911; the rebuilding of sewers in Front Street, State Street, Kilbourn Street, and Temple Street, in anticipation of laying improved pavement in these streets; the rebuilding of sewers in portions of Windsor and Pleasant Streets in response to a demand for more adequate sewerage; and the rebuilding of the sewer in Grove Street east of Front Street in order to relieve private lands from the encumbrance of an old drain which is frequently in need of repair.

New sewers are to be constructed in portions of Oak and Grand Streets; in Newton, Milford, Adams, and Essex Streets, and in portions of Homestead Avenue and Center Street.

Besides the foregoing, the construction of which is definitely decided upon, two other projects of very considerable importance have received the attention of the Court of Common Council, and the preliminary steps have been taken toward their accomplishment. I refer to,— First, the proposed sewer system for the large area south of Bond Street and New Britain Avenue and extending from Franklin Avenue to Fairfield Avenue,— and second,— the enclosing of Gully Brook.

Along Maple and Fairfield Avenues and the streets extending between them are hundreds of building lots already designated



Construction in Tunnel, 7′ 6″ diameter.
EAST SIDE INTERCEPTING SEWER.

Construction in open cut 7′ 0″ diameter.
EAST SIDE INTERCEPTING SEWER.

on maps of record, many of them, indeed, have already been built upon; yet this entire district is devoid of sewers, and only awaits their construction in order to develop into a large and valuable residential district.

The work of enclosing Gully Brook was started in 1906, and is now extended to Brook Street. A resolution is already before your Honorable Court providing for the layout and construction of a conduit to enclose the brook, and an appropriation of $50,000 to be applied toward the cost of this work was voted at the last City Meeting. This improvement will also add to the available building districts and will remedy an unsanitary and unsightly condition now in close proximity to a comparatively thickly-settled district.

Another section of the city that needs attention from a sanitary standpoint is the district lying between Blue Hills Avenue and Woods River, but more particularly that portion east of the Central New England Railway. The development of this district has begun near its upper and northern extremity, and thus far no trunk sewer has been extended sufficiently to afford drainage facilities to the many dwellings already erected and occupied. Unfortunately, topographical conditions render the draining of this section by the way of Blue Hills Avenue impracticable, even, indeed, impossible, and the obvious solution of the problem will be an extension of the Homestead Avenue Intercepting Sewer from its present terminus at Albany Avenue near Woods River, northerly to the Bloomfield line, with one or more lateral trunk sewers with branches through the several streets now accepted or proposed. The Commission on the City Plan has already approved a tentative plan for the arrangement of streets over a large part of this district and their acceptance and layout by the Court of Common Council should be followed as soon as practicable by the construction of a system of sewers therein.

A tabular statement of the sewers constructed the past year is appended to this report.

STREET AND PARK DIVISION.

The work assigned to this division is of a miscellaneous nature, the following varieties of work being included: Making surveys and plans for the layout of street, building and veranda lines and grade on new or existing streets; giving line and grade for municipal construction work such as grading, macadamizing, curbs and sidewalks, and setting city merestones for the definition of street lines.

During the year surveys, maps, and profiles were made for the layout of the following streets: Charles, Essex, Earle, Fenwick, Ferry, Francis Avenue, Front, Garden, Hanmer, Harwich, Henry, Kilbourn, Manetock, Middlefield, Morgan, Newbury, Raymond, Risley, Roosevelt, Roxbury, State and Talcott Streets, and Terry Road.

Levels were taken and profiles were made of Broad, Brown, Campfield Avenue, Douglas, Gilman, Harvard; Mountain, South, Southbury, and White Streets and Maple Avenue.

Surveys and maps were made for the layouts of building and veranda lines on Albany Avenue, Canton, Center, East, Edgewood, Main, Market, Sumner, and Willow Streets and Wethersfield Avenue.

Sixty reinforced concrete merestones were made and forty-one were set at the intersection of various streets, all stones being set on a uniform off-set of two feet out from the street lines.

Grade stakes were set for laying curb, walk, and catch-basins, and for grading work done by the Street Department.

Surveys were made for the Park Department in the Old North Cemetery, and in Riverside Park and Colt Park.

IMPROVED PAVEMENTS.

The work on improved paving as in the past few years has consisted of additional new work, resurfacing and repairing. Last season saw a substantial reduction in the unit prices of sheet asphalt pavement as a result of keen competition between local and outside bidders. The contract was awarded to The Southern New England Paving Company, whose total bid for the several jobs was $5,921.75 less than the next lowest bidder.

NEW PAVEMENT.

Under new pavement is included the paving with sheet asphalt of Farmington Avenue from Tremont Street to the City Line at Prospect Avenue, and Sheldon Street from Main Street to Union Street. The total length of these two pieces of work is one-half mile, which under present charter restrictions is the maximum amount of new paving that may be ordered in any one year except on petition of the owners of one-half the abutting land on any street where improved pavement is desired.

West Hartford worked in conjunction with the city and paved the intersection of Prospect Avenue and Farmington Avenue which is wholly in that town. The completion of this paving to the Town Line of West Hartford makes it now possible to pass through Hartford from east to west over improved pavement streets except for a short stretch on lower State Street which will be paved in 1912, and on the Boulevard from State Street to the new Connecticut River Bridge.

The paving of Sheldon Street was the beginning of a movement to improve the East Side streets. This street is subjected to a large volume of heavy teaming; and the concentration of traffic due to the narrowness of the roadway, the same being only twenty-three feet wide between curbs from South Prospect Street to Front Street, together with insufficient drainage due to the extremely flat grades, made it almost impossible to keep the street surface in good condition when paved with macadam. The improvement which the new pavement has brought about, especially in wet weather, is apparent to all who had and still have occasion to use the street.

The surface area of the new pavement on Farmington Avenue and Sheldon Street was 10,954.31 square yards, and the total cost $25,633.93. Of this amount the railroad's share on Farmington Avenue was $3,973.77.

The total mileage of improved pavements in the city is now 10.30, and the number of square yards 247,801.31. The pavement consists of 224,908.55 square yards of sheet asphalt, 2,095.55 square yards of block asphalt, 600 square yards of wood block, and 19,197.21 square yards of granite block. Tables containing valuable paving data are appended to this report. In one of these tables will be found the kind of pavement on each street, the yardage, the price per square yard, the assessment per front foot, the date of final payment, and the date of the expiration of the guarantee period. A second table gives the number of square yards, and the mileage actually covered, of the different kinds of improved pavement laid each year since 1892. In one table is given the amount actually expended on each street for repairs since the pavement was first laid, and another shows the average cost per yard for repairs on each street after the expiration of the guarantee period.

RESURFACING.

Capitol Avenue was resurfaced from Trinity Street to the Park River Bridge except for that portion north of the north track from Trinity Street to Broad Street which was resurfaced in 1910. The work was badly needed and brought about a decided improvement in this busy street.

High Street was resurfaced from Church Street to Ann and Main Streets. Late the previous season the Board of Water Commissioners laid a new main in the street and they bore a part of the expense of resurfacing, amounting to $1,317.76. Main Street was resurfaced on the east side from Windsor Street to Windsor Avenue, and on the west side from Park Street to near Jefferson Street. Other portions of Main Street were greatly in need of resurfacing, but the money available would only allow of the two stretches mentioned, and for the remainder of the street, patching had to suffice.

In repaving improved pavements 5,978.95 square yards of asphalt were laid at a cost of $8,968.43, and 91.69 square yards of concrete at a cost of $105.44. In connection with the resurfacing of High Street, headers were reset at its junction with Church Street at a cost of $67.81. The granite block on Morgan Street was repaired at a cost of $67.81, and $239.07 was expended on the block paving on Asylum Hill in connection with the track work at that place. This makes the total cost of the repair work $9,386.97. The average cost per yard for repairs for all improved pavement in the city was four cents.

In addition to the repairs paid for by the city, the repairing of cuts made in the pavement by the various public service corporations has been given due attention.

A list of the work charged to these corporations follows:

Connecticut Company,	2,722	sq. yds.
Board of Water Commissioners,	2,988	" "
Hartford Electric Light Co.,	1,315	" "
Hartford City Gas Light Co.,	299	" "
Southern N. E. Telephone Co.,	1,384	" "
Miscellaneous,	688	" "
Total,	9,396	" "

IMPROVED PAVING PROPOSED FOR 1912.

The half-mile of new paving the coming year will be laid on Sheldon Street from Union to Commerce, on Front Street from Sheldon to State, and on Grove Street from Front to Prospect; the pavement in each case will be sheet asphalt. In addition to these, State Street will be paved with sheet asphalt from Front Street to the east side of the Boulevard. The State Street work will not be assessed and does not come under the half-mile limitation since the street was paved with asphalt blocks previous to its being raised by the Bridge Commission. On Main Street some 15,000 square yards of sheet asphalt will be relaid at locations where most needed.

STREET RAILWAY WORK IN 1911.

Important track improvements were carried out the past seasons as follows: Double tracks were renewed on Farmington Avenue from Tremont Street to Prospect Avenue, and new special work installed at Prospect Avenue; new track and special work were laid on Asylum Street from Spruce Street to the junction at Farmington Avenue; the west track on Franklin Avenue was relaid from Morris Street to the City Line; the single track on Vine Street was extended 1,000 feet from Love Lane to the City Hospital; on Park Street new rails were laid from Lafayette Street to Zion Street, this being intended for a temporary relief from bad track conditions until the question of widening the street should be definitely settled; Park Street from New Park Avenue to Prospect Avenue changed from single to double track; on Blue Hills Avenue the single track was removed and its location changed from near the east curb line to what will ultimately be the line of the east track of a double track.

LONG RADIUS CURB CORNERS.

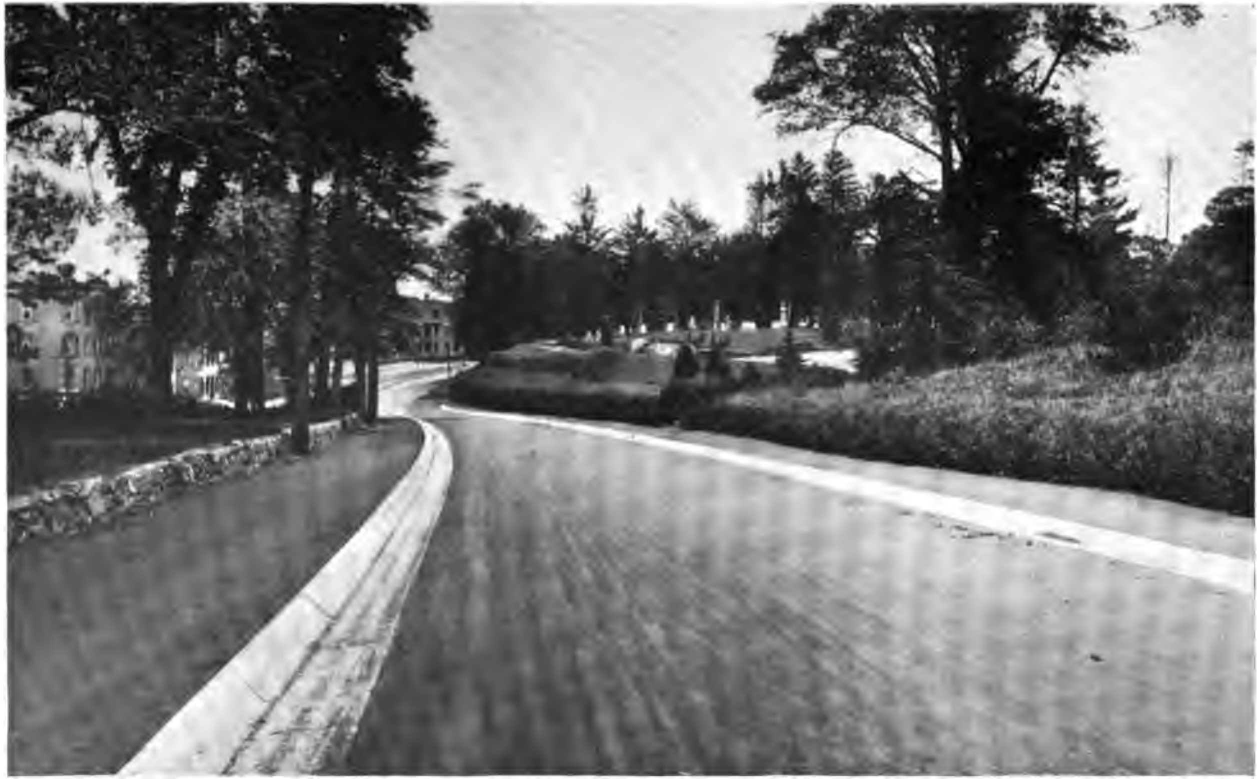
The curb at the corner of Ford and Pearl Streets was cut back as authorized, and made possible by the purchase of land at that point by your Honorable Court. The corners of Park and Main Street were cut back in connection with the widening of the roadway from Main Street to John Street, the expense being borne by the Street Railway Company. Both corners of Pratt Street and Main Street were cut back to long radii curves. The cost in connection with the north corner was paid by the Hartford Electric Light Company as the change was made at the company's request to accommodate the new location of its manhole. The coming season it is proposed to cut back the curb corners to longer radii at the following locations: northeast and southeast corners of Front and State Streets; Capitol Avenue and Main Street, both corners; Temple and Main Streets, both corners; Talcott and Main Streets, the north corner; Morgan and Main Streets, both corners; Trumbull and Main Streets, both corners; and at the angle in the west curb of Main Street opposite Morgan Street.

CONCRETE GUTTERS.

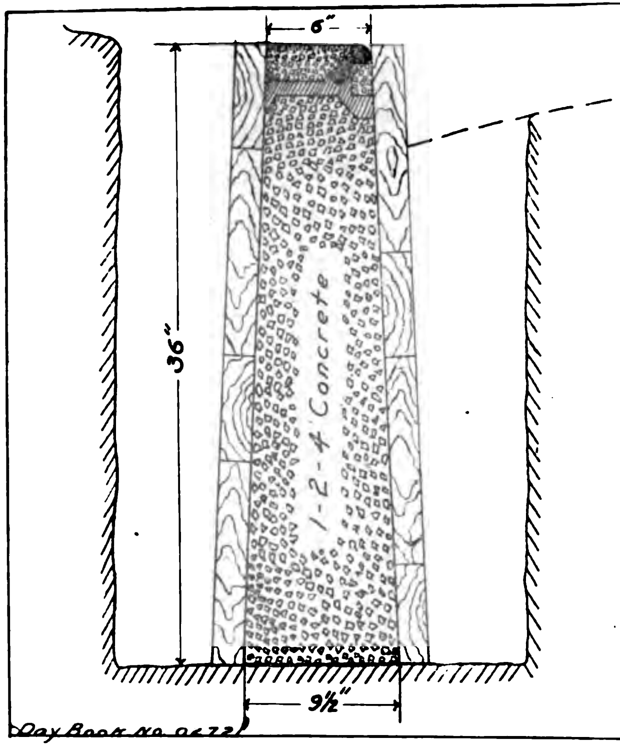
An improved concrete gutter was built the past season on Summit Street from Zion Street to a point half-way between Allen Place and Vernon Street. This type of gutter makes a curb unnecessary, serving as a combined curb and gutter. It is inexpensive, durable, effective, and adds to the appearance of the roadway.

CONCRETE CURB.

Probably no city in the country has more severe conditions to contend with as regards frost action than does Hartford. Here we experience severe extremes in heat and cold with sudden changes. This fact, together with the impervious clay soils at or near the surface, has a marked effect upon the stability of the walk and curbs in our streets. The common method of



COMBINED CURB AND GUTTER ON SUMMIT STREET



—Section Showing—
Typical Details
for
—Concrete Curb—

—See Specifications—

Steel Reinforcing
Either Plank or Steel Forms
to be used on sides for the entire depth
Stone for Concrete 3/4" Size
One Inch of 1-2 Mortar
on Top Face of Curb
Top of Curb 1/4" Batter

Scale: 1" = ½'

Department of Engineering
Hartford Conn.
May 1912

laying granite curbs in cinders has not prevented them from heaving in many locations. In the new concrete curb designed by this department and approved by the Board of Street Commissioners, an effort has been made to obtain a curb which would resist frost action and at the same time not be prohibitive in cost. A cut of this curb, together with the specifications to govern its construction, is appended to this report. A total of about 13,400 lineal feet of this curb was laid the past year on Bliss Street, the Boulevard east of Sisson Avenue, Prospect Avenue, and Blue Hills Avenue, and promises to be very satisfactory.

RIVERSIDE STREET FOOT BRIDGE.

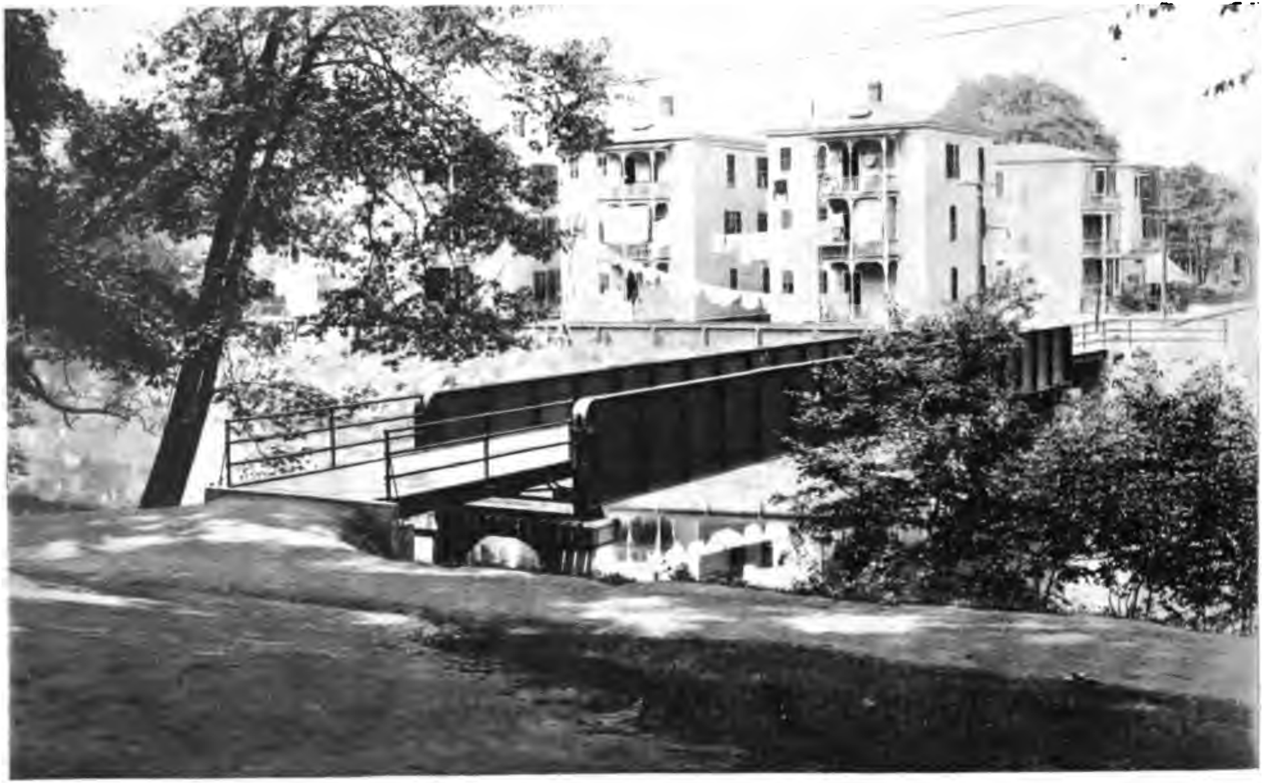
On May 22, 1911, by concurrent action of your Honorable Court the construction of a foot-bridge to span Park River on the line of Riverside Street was authorized and an appropriation of $5,500 made therefor. Acting under authority of this resolution the Board of Street Commissioners requested the Department of Engineering to prepare detailed plans and arrange for the letting of the contract. The work was let in two sections, Charles H. Slocomb & Company being contractors for the foundations, and The Berlin Construction Company for the superstructure. The bridge is essentially a single span steel girder 100 feet between piers, with short approach spans at either end. The cost of building the bridge and grading the approaches was well within the appropriation. This work was ordered in response to a local demand for more convenient means of crossing Park River by the employees of the several manufacturing concerns located in the vicinity and is crossed by thousands of pedestrians daily. A photograph of the bridge accompanies this report.

FORD STREET BRIDGE REPAIRS.

For several years past it had been evident to careful observers that the parapet walls along both sides of the Ford Street bridge had been gradually leaning outward from their true vertical position. Careful measurements of this displacement have been made annually since 1902 by this department and the matter has at different times received the attention of the Board of Street

RIVERSIDE STREET FOOT BRIDGE
Looking west from Pope Park

NEW BRIDGE OVER PARK RIVER IN BUSHNELL PARK
Looking west



RIVERSIDE STREET FOOT BRIDGE
Looking southwest

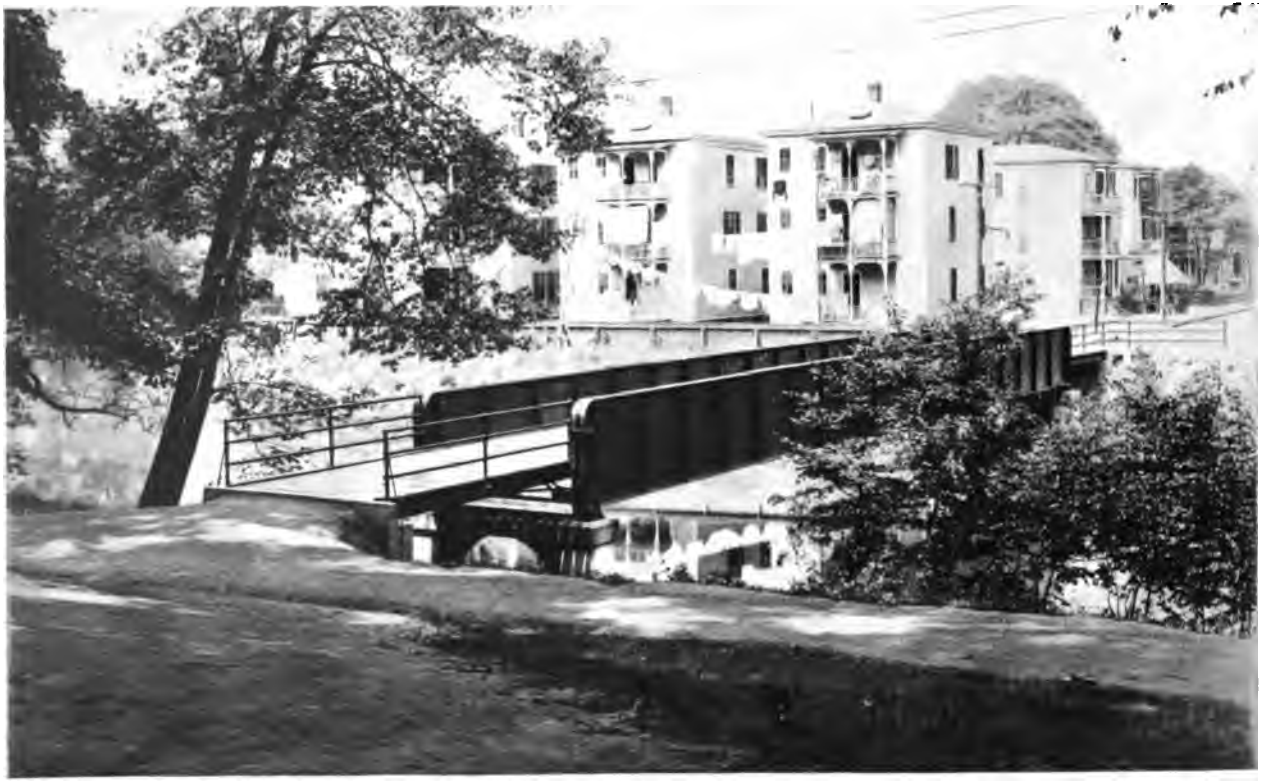
Commissioners. Finally the spreading of the parapets had increased to such an alarming extent that in May, 1911, your Honorable Court acting on the recommendation of the Board of Street Commissioners ordered them rebuilt, and caused an appropriation of $5,000 to be made therefor. A contract for this work was awarded to Charles H. Slocomb and is being carried out under the direction of this department. The two parapet walls will be carefully taken down stone by stone, the granite sidewalk flagging removed and replaced by reinforced concrete slabs which will project far enough to form supports for the parapets. These latter will then be re-assembled in their true positions.

BUSHNELL PARK BRIDGE.

On July 17, 1911, acting on the recommendation of the Board of Park Commissioners, your Honorable Court passed a resolution appropriating $4,700 to be used, in addition to $300 previously appropriated, for the erection of a steel highway bridge to replace the old wooden trusses in Bushnell Park where the west driveway crosses the Park River. The old bridge had been in use since 1854, and the woodwork was in such a state of decay as to render their repair impracticable. Designs and estimates for a steel bridge to rest on the existing brownstone pier and abutments were prepared by this department and submitted to the Board of Park Commissioners for their consideration. Upon their approval of the same, and the passage of the resolution making the appropriation, bids were asked and the contract awarded to the lowest bidder, The Berlin Construction Company. The work was carried out under the supervision of their department and completed within the appropriation.

CHEMICAL AND TESTING LABORATORY.

The testing and analysis of the various materials entering into municipal construction work, such as cement, asphalt, road oil, tar, sand, paints, etc., has been carried on as in the past under the direction of Mr. Arthur J. Schoenfuss, Chemist of the Department. Following is a brief summary of his report with a description of the methods employed in the testing of cement:



RIVERSIDE STREET FOOT BRIDGE
Looking southwest

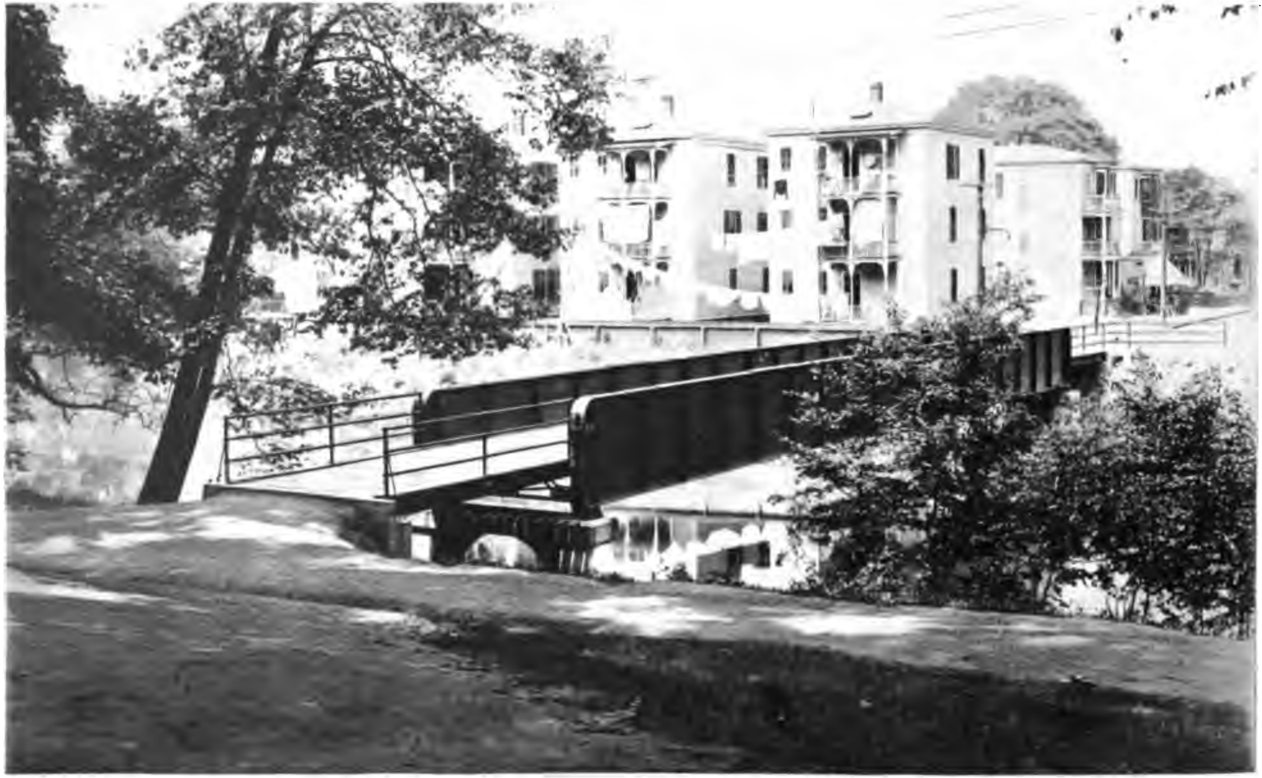
Commissioners. Finally the spreading of the parapets had increased to such an alarming extent that in May, 1911, your Honorable Court acting on the recommendation of the Board of Street Commissioners ordered them rebuilt, and caused an appropriation of $5,000 to be made therefor. A contract for this work was awarded to Charles H. Slocomb and is being carried out under the direction of this department. The two parapet walls will be carefully taken down stone by stone, the granite sidewalk flagging removed and replaced by reinforced concrete slabs which will project far enough to form supports for the parapets. These latter will then be re-assembled in their true positions.

BUSHNELL PARK BRIDGE.

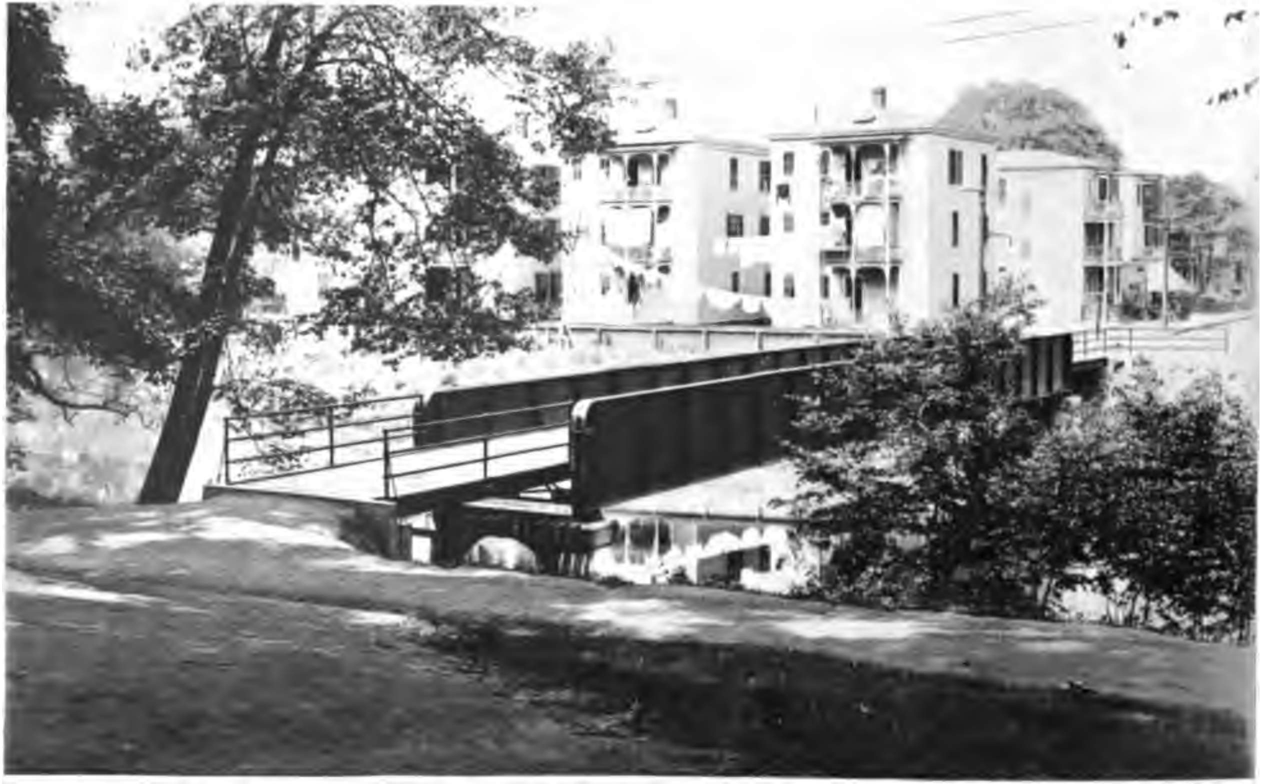
On July 17, 1911, acting on the recommendation of the Board of Park Commissioners, your Honorable Court passed a resolution appropriating $4,700 to be used, in addition to $300 previously appropriated, for the erection of a steel highway bridge to replace the old wooden trusses in Bushnell Park where the west driveway crosses the Park River. The old bridge had been in use since 1854, and the woodwork was in such a state of decay as to render their repair impracticable. Designs and estimates for a steel bridge to rest on the existing brownstone pier and abutments were prepared by this department and submitted to the Board of Park Commissioners for their consideration. Upon their approval of the same, and the passage of the resolution making the appropriation, bids were asked and the contract awarded to the lowest bidder, The Berlin Construction Company. The work was carried out under the supervision of their department and completed within the appropriation.

CHEMICAL AND TESTING LABORATORY.

The testing and analysis of the various materials entering into municipal construction work, such as cement, asphalt, road oil, tar, sand, paints, etc., has been carried on as in the past under the direction of Mr. Arthur J. Schoenfuss, Chemist of the Department. Following is a brief summary of his report with a description of the methods employed in the testing of cement:



RIVERSIDE STREET FOOT BRIDGE
Looking southwest



RIVERSIDE STREET FOOT BRIDGE
Looking southwest

Commissioners. Finally the spreading of the parapets had increased to such an alarming extent that in May, 1911, your Honorable Court acting on the recommendation of the Board of Street Commissioners ordered them rebuilt, and caused an appropriation of $5,000 to be made therefor. A contract for this work was awarded to Charles H. Slocomb and is being carried out under the direction of this department. The two parapet walls will be carefully taken down stone by stone, the granite sidewalk flagging removed and replaced by reinforced concrete slabs which will project far enough to form supports for the parapets. These latter will then be re-assembled in their true positions.

BUSHNELL PARK BRIDGE.

On July 17, 1911, acting on the recommendation of the Board of Park Commissioners, your Honorable Court passed a resolution appropriating $4,700 to be used, in addition to $300 previously appropriated, for the erection of a steel highway bridge to replace the old wooden trusses in Bushnell Park where the west driveway crosses the Park River. The old bridge had been in use since 1854, and the woodwork was in such a state of decay as to render their repair impracticable. Designs and estimates for a steel bridge to rest on the existing brownstone pier and abutments were prepared by this department and submitted to the Board of Park Commissioners for their consideration. Upon their approval of the same, and the passage of the resolution making the appropriation, bids were asked and the contract awarded to the lowest bidder, The Berlin Construction Company. The work was carried out under the supervision of their department and completed within the appropriation.

CHEMICAL AND TESTING LABORATORY.

The testing and analysis of the various materials entering into municipal construction work, such as cement, asphalt, road oil, tar, sand, paints, etc., has been carried on as in the past under the direction of Mr. Arthur J. Schoenfuss, Chemist of the Department. Following is a brief summary of his report with a description of the methods employed in the testing of cement:

" In the past year the work done in the laboratory has comprised, as in previous years, the sampling and testing of all materials used in work done under the supervision of the Department of Engineering and by the Street Department, the daily inspection of asphalt paving, and the sampling and testing of supplies such as coal, oil, fire hose, and paint purchased by other departments of the city government.

" As the success of the concrete depends in a large measure upon the sand used as well as upon the cement, and as during the year just passed some difficulty has been experienced in obtaining sand that is coarse enough for concrete, close attention has been given to the inspection of sand. No difficulty was encountered in securing sand for asphalt pavements, as for this purpose a fine sand is required, and a very excellent grading was obtained by mixing an East Hartford sand with a sand from the Connecticut River. The usual run of sand about Hartford is apt to be too fine for concrete; for this purpose is desired a sand containing about 10 per cent. retained on a ¼-inch screen and not more than 15 per cent. passing a 50 mesh screen.

" As cement testing constitutes a large part of the work of this branch of the Engineering Department, it might be of some interest to describe the mode of procedure.

" As soon as a delivery of cement is received, one bag in about every thirty throughout the shipment is opened. if the consignment is a large one; if only a small amount is to be sampled, enough bags are opened to insure obtaining a fair average sample. A core of cement is removed from each bag opened, by means of a sampling iron long enough to reach to the center of the bag. In the laboratory the sample is thoroughly mixed and 50 oz. weighed out and mixed with a measured amount of water at 70° F. until the standard consistency for molding is reached, the amount of water required being recorded. The paste is then pressed into brass briquette molds so shaped that each briquette has a cross section at its narrowest part of one square inch. A circular pat about 3 inches in diameter and a small cubical pat are made of the same paste upon glass plates. Ten briquettes of the same shape as the others are also made of a mortar consisting of one part cement to three parts, by weight, of standard

Ottawa quartz sand, with a measured amount of water. The briquettes and pats are then stored in a specially constructed closet, over water, kept at about 70° F. for twenty-four hours. From time to time the small cubical pat is tried with a wire of 1/12-inch diameter weighing ¼ lb. When the cement has hardened to such a degree that the wire fails to make an impression the cement is said to have obtained its initial set. This usually occurs in about three hours after molding. The pat is then tried at intervals with a wire of 1/24-inch diameter weighing one pound, until the point ceases to penetrate, when the cement is said to have acquired its final set. This ordinarily requires from five to seven hours. Twenty-five grams of the original sample are weighed out carefully and shaken through sieves having 200 and 100 meshes to the linear inch respectively. The residue on each sieve is carefully weighed to ascertain whether the cement meets the required standard for fineness.

"After twenty-four hours storage in the damp closet the circular pat is placed in boiling water for four hours. If the cement is sound the pat will remain unchanged. If the pat cracks or warps the cement should not be used. It sometimes happens that a cement will be shipped before it has been stored long enough to have properly seasoned. Such a cement is said to be too green and will fail to pass the boiling test. If, however, the cement is stored for several weeks it may then improve so as to pass the test satisfactory. Twenty-four hours after molding, four of the neat briquettes, that is briquettes made up of cement and water only, are clamped, one at a time, in a machine so made that a gradually increasing strain can be applied to the briquette until it breaks apart in the middle, and the weight required registered. The average of the four results is given as the tensile strength per square inch at twenty-four hours. The remaining briquettes are then placed in water at 70° F. After seven days three of the neat and five of the sand briquettes are broken for the seven days tensile strength test. If the cement meets the requirements at the end of seven days it is passed as satisfactory. The remaining briquettes are broken at twenty-eight days as a matter of record. If the cement fails in any of the seven days tests it may be analyzed to discover the cause, or subjected to longer time tests, or a re-test after storage. If upon a second test it shows no improvement it is rejected."

PROPERTY TRANSFERS.

Two thousand seven hundred and sixty-two abstracts of deeds recorded during the year at the Town Clerk's Office were made and ownerships changed on the reference maps and street sprinkling assessment list.

Fourteen maps filed with the Town Clerk by property owners were platted in the map book, and seven maps were platted in deed books.

The usual set of property maps, one hundred and thirty-three in number, and including the entire area of the city, was made for the Board of Assessors.

Seventy-six layouts comprising lines for street, building, veranda, grades, curbs, sidewalks, and sewers were passed by your Honorable Court and posted in the layout books. Fifty-nine of these were noted on the reference maps.

Twelve streets, Cabot, Canton, Dean, Essex, Fenwick, Gold, Lincoln, Newton, Orange, Otis, Torwood, and Wellington, were numbered, and three hundred and forty-six cards for house numbers were issued.

The street sprinkling assessment containing upward of ten thousand names and covering about seventy-three miles of sprinkled streets was prepared for the Board of Street Commissioners.

DRAIN LAYERS.

In 1911 forty-eight licenses were issued to drainlayers, and a total of seven hundred and sixty-eight permits taken, five hundred and thirty-three of which were for new building drains, fifty-five for repair work, and the remainder for draining telephone and electric light manholes, hydrants, etc. To date 4,161 permits for drainage have been issued since the ordinance went into effect in May, 1903.

PARK RIVER.

The condition of the Park River due to lack of rainfall and flat gradients, caused much unfavorable comment during the summer of 1911, and a resolution from your Honorable Court requesting the Commission on the City Plan to examine and report on the matter for cleaning up the river along Jewell and Wells Streets was referred to a committee of three of which the City Engineer was a member. This committee gave the matter considerable study and brought in a report making very definite recommendations which may be summarized briefly as follows: Enclose that section of Park River between Front Street and Main Street by means of a covered conduit of suitable size, using the width of the river thus reclaimed as sites for mercantile or light manufacturing industries, thereby making possible the widening of Arch Street to the south. A portion of the space thus gained over the river would make an ideal site for a public market which could be made easily accessible both from Main Street and from the east side of the city; acquire the properties on both sides of the river between Wells and Elm Streets, widening those streets and continuing Bushnell Park to Main Street; remove the present dam at Daniels' Mill, build a new one about 300 feet further up stream, and transform the bed of the river between Main Street and the dam into a stretch of rapids; grade the bed of the river from the new dam to the stepping stones dam, and pave the bottom with large flat stones so that the entire mill-pond may be emptied and cleaned; widen Wells and Jewell Streets and treat both banks of the river in harmony with Bushnell Park; from the stepping stones dam up stream to Hamilton Street confine the changes to paving the bed of the stream. This report was referred to the Board of Park Commissioners who have not as yet made any report thereon.

The Board of Street Commissioners have been allowed an appropriation toward cleaning the bed of the river and making necessary minor changes. It is to be hoped that a complete report may be made to your Honorable Court in the near future, and steps taken to make this much needed improvement.

GRADE CROSSINGS.

Acting under instructions from a joint special committee of your Honorable Court, tentative plans were prepared for the elimination of the group of grade crossings in the vicinity of

Windsor, Avon, and Russell Streets, and submitted to the Chief Engineer of The New York, New Haven and Hartford Railroad Company, who informed the committee that he would give them careful consideration and report the result thereof to the proper official of his company from whom the city might expect a report giving the company's views in the matter. Thus far no report has been received and it will probably be necessary to petition the Public Utilities Commission to order the work done.

Studies have been made for the general elimination of crossings south of Union Station. Owing to the magnitude of the work involved, and to the very considerable property damages which would be caused, the matter should be very carefully considered by a special committee before definite action is taken. As a part of the general scheme, however, I would respectfully recommend that immediate steps be taken to lay out an extension of Capitol Avenue westerly from Willow Street, passing under the railway tracks and connecting with the street known as the Boulevard. A continuous highway could thus be obtained extending from Main Street on the east through Capitol Avenue, the Boulevard, and Capitol Avenue Extension to Prospect Avenue on the west. A recent count of the pedestrians crossing the tracks between the Boulevard and Willow Street showed that upward of sixteen hundred persons daily risk their lives in trespassing on the railroad company's tracks at this point.

I have already submitted a report to the Board of Street Commissioners outlining a plan for this work.

STREET PAVING WORK.

In connection with the work of street paving I would recommend that steps be taken to have the statute limiting the length of street which may be ordered paved without petition, to one-half mile in any one year, amended so as to increase this amount to two or even more miles. Hartford is behind other cities in this respect, for while we have in the neighborhood of 150 miles of streets, only 10.3 miles are provided with improved pavement; and at the rate of only one-half mile per year, many years must elapse before even all the streets in the down-town section of the city are paved. In my opinion all the main avenues of approach to the city should be paved to the City Line. A good beginning has been made in this respect in paving Farmington Avenue. Windsor Avenue, Albany Avenue, Wethersfield Avenue, and Park Street should be paved without delay. All the East Side streets should be paved for reasons of health and cleanliness.

The work of building the East Side Intercepting Sewer and Pumping Station will be completed during the season of 1912. This is the initial feature of the larger project for the relief of those sections of the city near the water-front from damages by flooding when the Connecticut River is at freshet stage. The relief furnished by the works now in progress, however, will not extend south of State Street owing to the lack of a dyke in front of this section. Plans for the continuation of this work were made and submitted to a joint special committee of your Honorable Court in 1908, and steps should be taken toward carrying out the same as soon as the finances of the city will permit.

In conclusion I wish to express my appreciation of the cordial relations existing between the Department of Engineering and the several other commissions, departments, and officials. To the members of the Board of Street Commissioners, their Superintendent and employees I am particularly indebted for their encouragement and support. To his Honor the Mayor and the Honorable Court of Common Council I acknowledge with greatful appreciation the many courtesies extended to me personally. To my co-workers in the Department I wish to express my appreciation of their loyalty and industry. They have cheerfully responded to all demands and have shown a commendable interest in the work of the Department.

Respectfully submitted,
ROSCOE N. CLARK,
City Engineer.

SPECIFICATIONS

TO GOVERN THE CONSTRUCTION OF CONCRETE CURBS AND WALKS IN THE CITY OF HARTFORD.

CONCRETE CURB.

Line and grade.

Grade stakes and line stakes will be set by the City Engineer, and the Contractor must carefully work to these lines and grades. If any stakes are moved or lost they shall be re-set at any time upon request of the Contractor, and if at any time doubt exists in the mind of the Contractor about the correctness of any such mark or stake he must call for a verification of these points, as any work which is not absolutely true to line and grade will be ordered removed and replaced at the proper line and grade.

Excavation.

The Contractor shall excavate to the depth below grade and to a cross-section as indicated on drawing numbered 02721 which is made a part of these specifications.

Whenever the ground encountered is soft and unsuitable for foundation, it shall be removed and replaced by gravel, or other material satisfactory to the Engineer as may be ordered.

Size and shape of curb.

The curb shall be constructed to a cross-section as shown on plan 02721, and no variation from this section will be allowed except by permission of the City Engineer.

Forms.

Either plank or steel forms shall be used on both sides of the curb for a depth of not less than thirty inches. If a mixture is used sufficiently dry to allow of the forms being removed oftener than once a day, then the curb shall be kept sprinkled and covered for at least three days.

The total water in any batch must be equal to at least four gallons per bag of cement.

In all cases the Engineer or Inspector shall be the judge as to the time which must elapse before removing forms, and on curves where there is a tension in the steel reinforcement, the forms shall remain until such time as the concrete has set sufficiently to take up this tension.

Templates.

If steel templates are used and the curb is not built in alternate section, the thickness of these templates and therefore the width of the open joint between sections shall not exceed ¼ inch.

Steel reinforcement.

The outer edge of the curb shall be protected by suitable steel reinforcement carefully placed and satisfactory to the City Engineer.

Concrete.

Concrete is to be composed of one part of cement, two parts sand, and four parts stone, determined by measure.

Cement.

Cement shall be first quality American Portland of a reputable brand satisfactory to the City Engineer.

Sand.

Sand shall be clean and sharp, free from loam, and moderately coarse.

Stone.

Broken stone shall be trap rock ¾-inch size, clean, and free from loam and dirt. It shall be thoroughly washed whenever necessary to secure this condition.

Mixing concrete.

The concrete shall be thoroughly mixed either by hand or machine in a manner satisfactory to the Engineer.

Placing concrete.

Concrete shall be placed in layers not exceeding six inches deep and thoroughly tamped, and when once begun, the process of filling any section shall be continuous to completion. The concrete shall be spaded adjacent to the forms to insure a smooth finish, and shall be thoroughly compacted about this steel reinforcement to insure its being perfectly imbedded.

Length of sections.

The curb shall be built in sections ten feet in length except in special cases where the length is impracticable.

Finish.

The upper surface of the curb and to a depth of one inch shall be two to one mortar to which a sufficient quantity of lampblack shall be added to give the desired color. This top coat shall immediately follow the placing of the concrete, and every precaution shall be taken to insure a bond between this top and the underlying concrete. The face of the curb for a depth of ten inches shall be painted with neat mortar and lampblack so that its color will correspond with that of the top of the curb.

After removing the forms if any rough places are found they shall be immediately filled with mortar and smoothed up for the entire depth of the form.

STATISTICS OF ALL IMPROVED PAVEMENT LAID IN HARTFORD TO JANUARY 1st, 1912.

STREET	LOCATION	Kind of pavement	Single or double tracks	Total No. of square yards	Price per square yard	Ass't per front foot	Date of final payment	Guarantee expires
Albany Avenue,	Windsor Ave. to East St.,	S. A.	D. T.	4,520.00	$2.51	$2.1002	Nov. 12, 1900*	Nov. 12, 1905
Allyn Street,	Trumbull to Union Pl.,	S. A.	No	6,041.00	2.56	3.5590	June 12, 1899	June 12, 1904
Amer. & Cent. Rows,	East of Post Office,	G.	D. T.	1,885.00	3.79	(laid by city)	Dec. 1, 1909	Dec. 1, 1910
Ann Street,	Asylum to Allyn St.	S. A.	No	1,170.26	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Asylum Street,	Spruce to Farmington Ave.,	G.	D. T.	4,658.72	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street,	Spruce to Farmington Ave.,	S. A.	D. T.	1,701.58	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street,	Main to Spruce St.,	S. A.	S. T.	10,351.20	2.28	(by city)	Oct. 12, 1908	Oct. 12, 1918
Atheneum Street,	Prospect to Main St.,	S. A.	No	558.33	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Capitol Avenue,	Lafayette to Park River,	S. A.	D. T.	15,075.34	1.90	1.8393	Nov. 26, 1900bc	Nov. 26, 1905
Capitol Avenue,	Park River to Laurel,	S. A.	D. T.	4,067.50	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Central Row,	Main St. to Post Office,	S. A.	D. T.	2,000.00	2.71	(by city)	Dec. 1, 1909	Dec. 1, 1914
Church Street,	Main to Trumbull St.,	S. A.	No	1,399.24	2.73	(relaid by city)	July 28, 1909	July 28, 1914
Church Street,	Union Pl. to Spruce St.,	S. A.	No	957.00	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Farmington Avenue,	Asylum to Woodland St.,	S. A.	D. T.	21,465.60	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue,	Woodland to Tremont St.,	S. A.	D. T.	14,487.97	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue,	Tremont to Prospect Ave.,	S. A.	D. T.	4,152.57	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ford Street,	Pearl to Asylum St.,	S. A.	D. T.	2,658.90	2.25	(by city)	Oct. 12, 1908	Oct. 12, 1918
Gold Street,	Main to Lewis St.,	S. A.	No	1,458.00	2.55	3.0566	Sept. 11, 1898	Sept. 11, 1903
Grove Street,	Prospect to Main St.,	S. A.	No	913.22	2.55	2.3179	July 25, 1898	July 25, 1903
Haynes Street,	Pearl to Asylum St.,	B. A.	No	718.42	3.14	3.0667	June 27, 1898	June 27, 1903
High Street,	Asylum to Main St.,	S. A.	No	6,341.00	2.56	2.6884	Aug. 14, 1899d	Aug. 14, 1904
Hopkins Street,	Broad to Asylum St.,	S. A.	No	3,135.80	2.58	2.3865	June 12, 1899	June 12, 1904
Kinsley Street,	Market to Main St.,	S. A.	No	1,037.20	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903
Lewis Street,	Pearl to Gold St.,	S. A.	No	1,085.00	2.51	1.808	Sept. 24, 1900	Sept. 24, 1905
Main Street,	Arch to Morgan St.,	S. A.	D. T.	20,038.38	2.49	5.4887	Dec 14, 1896	Dec. 14, 1901
Main Street,	Morgan to Windsor Ave.,	S. A.	D. T.	13,435.14	2.70	4.6395	Oct. 11, 1897e	Oct. 11, 1902
Main Street,	Wyllys to Arch St.,	S. A.	D. T.	22,840.75	2.66	4.5750	Oct. 25, 1897a	Oct. 25, 1902
Main Street,	State Street north,	W. B.	D. T.	600.00				
Market Street,	State to Temple St.,	S. A.	S. T.	2,600.78	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1903
Market Street,	Temple to Morgan St.,	S. A.	S. T.	2,654.50	2.56	2.3270	Oct. 9, 1899†	Oct. 9, 1901

4 inches in thickness, and the upper surface shall be true, uniform, and one inch below the finished grade.

Top or wearing surface.

The top or wearing surface shall be one inch thick and of one part Portland Cement and two parts of clean, coarse, and sharp sand, mixed with sufficient water to produce a mortar of a consistency suitable for floating or spreading with a straight edge. When partially set, the surface shall be troweled until a smooth, even surface is obtained.

If screenings are used in the top coat then the surface shall consist of equal parts of screenings, sand and cement.

Color.

To the surface coat lampblack or other satisfactory coloring matter shall be added in sufficient quantity to give the desired color.

The top coat shall follow the placing of the concrete base immediately, and every precaution taken to insure a bond between this top coat and the underlying concrete.

Concrete.

Cement shall be first quality American Portland of a reputable brand satisfactory to the City Engineer.

Sand shall be clean, coarse, sharp, and free from loam or dirt.

Crushed Stone shall be trap-rock, mixed sizes, not over 1½" in largest dimension.

Screenings shall be clean and free from crusher dirt.

Inspection.

All the work shall be done under proper official inspection, but such inspection shall not relieve the Contractor from any obligation to perform the work strictly in accordance with these specifications, and work not so constructed shall be removed and made good without charge by the Contractor whenever so ordered.

Questions not covered by Specifications.

All questions arising which are not especially covered by these specifications shall be decided by the City Engineer.

Table showing the number of square yards, and the mileage actually covered, of the different kinds of Improved Pavement laid in Hartford since 1892. This table includes only new pavement laid — no repairing work.

YEAR LAID	BRICK		BLOCK ASPHALT		GRANITE		SHEET ASPHALT		Total Yardage Laid Each Year	Total Miles
	Yardage	Miles	Yardage	Miles	Yardage	Miles	Yardage	Miles		
a. 1892	1427.55	0.11	......	....	....	....	......	....	1427.55	0.11
1894	......	....	......	....	3267.00	0.12	......	....	3267.00	0.12
b. 1895	......	....	7755.50	0.32	....	...	......	....	7755.50	0.32
c. 1896	......	....	12063.32	0.38	....	....	21466.71	0.57	33530.03	0.95
d. 1897	......	....	6694.04	0.36	....	....	44622.93	1.49	51316.97	1.85
e. 1898	......	....	8925.19	0.32	9148.10	0.40	21049.89	1.06	39123.18	1.78
1899	......	....	......	....	395.30	0.03	63784.40	3.10	64179.70	3.13
1900	......	....	......	....	....	....	23168.80	1.06	23168.80	1.06
1903	f600.00	....	......	....	....	....	8188.50	0.32	8788.50	0.32
1908	......	....	......	....	1756.94	0.07	13010.10	0.58	14767.04	0.65
1909	......	....	......	....	4629.87	0.12	7805.60	0.28	12435.47	0.40
1910	......	....	......	....	....	....	14487.97	0.50	14487.97	0.50
1911	......	....	......	....	....	....	9193.65	0.50	9193.65	0.50
Totals,	2027.55	0.11	35438.05	1.38	19197.21	0.74	226778.55	9.46	283441.36	11.69

NOTE:
a. Pratt Street was surfaced over with sheet asphalt in 1899.
b. Pearl Street was repaved with sheet asphalt in 1903.
c. State Street, Central and American Rows, block asphalt was removed and repaved with granite block and sheet asphalt from Front to Main Street in 1908-09, and with macadam from Commerce Street to Front Street.
d. Asylum Street, block asphalt was removed and repaved with sheet asphalt in 1908.
e. Ford Street, block asphalt was removed and repaved with sheet asphalt in 1908.
f. This 600.00 yards is wood block, replacing sheet asphalt between tracks on Main Street.

From the total amount of pavement laid in Hartford since 1892 (283,441.36 square yards or 11.69 miles) should be deducted 35,640.05 square yards or 1.39 miles, as, in this amount, is included the brick, block asphalt, and sheet asphalt replaced by new sheet asphalt pavement, so that the amount of Improved Pavement in service at the present time is 247,801.31 square yards or 10.30 miles. If the total yardage were reduced to a uniform roadway 30 feet in width there would be 14.08 miles. Many of the paved streets are much wider than 30 feet, so that the actual length is, as stated, 10.30 miles.

THE FOLLOWING SUMS HAVE BEEN EXPENDED FOR REPAIRS ON PAVED STREETS UP TO JANUARY 1st, 1912.

Streets	Previous to 1902	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	Total
Albany Avenue,	$......	$......	$......	$7.19	$......	$17.01	$198.06	$190.72	$200.41	$28.25	$110.67	$752.31
Allyn Street,	......	......	30.37	......	17.67	124.89	109.75	163.69	451.30	156.37	352.54	1406.58
Amer. & Cent. Rows,	......	435.23	360.00	973.98	50.02	412.44	2.98	413.24	......	......	......	2647.89
Ann Street,	......	......	......	......	......	......	......	6.40	......	5.64	......	12.04
Asylum Street,	......	......	358.92	1460.01	686.01	745.67	232.46	165.83	245.25	189.43	231.85	4315.43
Atheneum Street,	......	......	......	......	......	......	......	11.47	15.45	5.91	88.23	121.06
Capitol Avenue,	......	......	......	......	36.10	483.43	1668.31	1303.49	1343.15	1727.88	......	6562.36
Church Street,	......	......	169.56	40.85	91.17	168.77	325.43	139.56	53.48	71.44	139.08	1199.34
Farmington Avenue,	748.70	......	254.02	1351.28	879.91	1929.23	2810.71	909.28	3110.96	2180.38	3333.76	17508.23
Ford Street,	......	......	......	236.32	......	414.40	1.12	......	......	......	95.55	747.39
Gold Street,	......	......	......	......	......	......	......	......	......	......	26.50	26.50
Grove Street,	......	......	......	......	......	......	......	39.24	56.20	58.31	23.43	177.18
Haynes Street,	......	......	93.16	......	......	......	......	......	......	20.13	......	113.29
High Street,	......	......	......	98.66	28.37	418.45	515.60	309.02	1108.58	580.22	262.06	3320.96
Hopkins Street,	......	......	......	243.77	......	216.60	272.37	768.46	390.62	694.15	522.98	3108.95
Kinsley Street,	......	......	32.34	......	......	......	......	......	12.35	......	......	44.69
Lewis Street,	......	......	......	......	......	......	......	......	......	......	8.89	8.89
Main Street,	245.56	147.22	1809.57	1083.77	2414.36	3783.59	3672.51	6513.41	4168.23	2831.77	1899.11	28569.10
Market Street,	88.14	210.69	113.67	363.12	92.93	80.47	828.89	288.90	261.93	232.01	129.15	2689.90
Morgan Street,	......	......	57.47	......	......	35.59	......	8.80	7.35	8.56	74.03	191.80
Mulberry Street,	......	......	......	......	28.22	......	25.69	51.07	13.68	......	29.93	148.59
Park Street,	17.49	......	122.40	......	106.89	......	......	103.72	......	......	......	350.50
Pearl Street,	968.05	......	10.97	165.84	......	......	41.38	......	......	2.77	......	1189.01
Pleasant Street,	......	......	......	9.91	......	......	......	......	......	54.26	10.31	74.48
Pratt Street,	16.20	......	2.79	......	8.61	4.64	12.14	93.44	71.75	55.67	42.12	307.36
Prospect Street,	......	......	......	33.44	91.07	......	......	......	115.62	92.17	85.40	417.70
Spruce Street,	......	3.19	......	......	......	......	......	......	4.27	4.10	30.15	41.71
State Street,	1044.29	663.53	3006.65	41.78	1108.63	2771.30	5.96	74.78	......	......	......	8716.92
Talcott Street,	......	......	......	......	......	12.25	......	......	......	......	......	12.25
Temple Street,	......	......	......	2.90	......	......	......	......	......	7.90	......	10.80
Trinity Street,	......	......	125.97	305.71	69.27	766.23	387.14	1564.86	267.81	190.82	205.71	3883.52
Trumbull Street,	......	......	36.42	118.56	43.51	106.55	391.07	130.72	219.91	214.58	114.34	1375.66
Union Place,	......	......	......	......	......	131.91	......	35.16	......	6.66	......	173.73
Village Street,	......	......	......	......	......	......	......	......	......	......	7.83	7.83
Windsor Street,	......	......	......	11.59	......	......	......	35.15	......	......	15.54	62.28
Windsor Avenue,	7.89	21.96	44.84	134.77	94.74	518.42	764.31	563.29	1145.77	685.33	1115.76	5097.08
Totals,	$3136.32	$1481.82	$6629.12	$6683.45	$5847.48	$13141.84	$12265.88	$13883.70	$13264.07	$10104.71	$8964.92	$95393.31

TABLE SHOWING THE COST PER YARD FOR REPAIRS TO SHEET ASPHALT PAVEMENT FOR EACH YEAR AFTER EXPIRATION OF GUARANTEE TO JANUARY 1st, 1912.

Street	Completed	Years guaranteed	6th year	7th year	8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	16th year	17th year
Albany Avenue,	1900	5	$.0038	$.0438	$.0422	$.0443	$.0062	$.0244	....	....	....	....	....	....
Allyn Street,	1899	5	.0029	.0207	.0181	.0271	.0747	.0239	.0583	....	....	....	....	....
Ann Street,	1898	5	....	....	....	....	.0055	....	.0048	None	....	....	....	....
Asylum Street,	1908	10	Guarantee expires 1918.											
Atheneum Street,	1896	5	....	....	....	....	....	....	.0205	.0277	.0106	.1580	....	....
Capitol Avenue,	1900	5	.0338	.1165	.0910	.0940	.1207	North side repaved 1910.			Trinity to Broad.			
Church Street,	1897	5	.1211	.0292	.0651	.1206	.2325	.0997	Repaved 1909.					
Farmington Ave.,	1899	5	.0410	.0899	.1309	.0424	.1449	.1016	.1553	....	....	....	....	....
Ford Street,	1908	10	Guarantee expires 1918.											
Gold Street,	1898	5	....	....	....	....	....	....	....	.0181	....	....	....	....
Grove Street,	1898	5	....	....	....	....	.0430	.0615	.0639	.0256	....	....	....	....
High Street,	1899	5	.0045	.0660	.0813	.0487	.1748	.0915	Partly repaved 1911.					
Hopkins Street,	1899	5	....	.0691	.0869	.2451	.1246	.2214	.1667	....	....	....	....	....
Kinsley Street,	1898	5	....	....	....	....	....	.0912	None	....	....	....	....	....
Lewis Street,	1900	5	....	....	....	....	....	.0081	....	....	....	....	....	....
Main Street,	1896	5	.0026	.0321	.0192	.0429	.0672	.0652	.1157	.0740	.0503	Partly repaved 1910.		
Market Street,	1898	5	.0691	.0177	.0153	.1577	.0550	.0490	.0441	....	Partly repaved 1909.			....
Mulberry Street,	1898	5	....	.0217	....	.0198	.0393	.0105	....	.0230	....	....	....	....
Pearl Street,	1903	10	Guarantee expires 1913.											
Pleasant Street,	1898	5	.0098	....	....	....	....	....	.0537	.0102	....	....	....	....
Pratt Street,	1899	5	.0060	.0032	.0084	.0650	.0499	.0387	.0292	....	....	....	....	....
Prospect Street,	1898	5	.0186	.0505	....	....	....	.0641	.0511	.0473	....	....	....	....
Spruce Street,	1900	5	....	....	....	.0019	.0018	.0131	....	....	....	....	....	....
Talcott Street,	1898	5	....	....	.0360	....	....	....	....	None	....	....	....	....
Temple Street,	1898	5	.0027	....	....	....	....	....	.0075	None	....	....	....	....
Trinity Street,	1897	5	.0181	.0440	.0100	.1103	.0557	....	.0385	.0275	Partly repaved 1908.			....
Trumbull Street,	1898	5	.0222	.0081	.0199	.0732	.0245	.0412	.0402	.0214	....	....	....	....
Village Street,	1899	5	....	....	....	....	....	....	.0061	....	....	....	....	....
Windsor Avenue,	1899	5	.0048	.0262	.0386	.0285	.0579	.0346	.0563	....	....	....	....	....
Windsor Street,	1898	5	.0050	....	....	....	.0151	....	....	.0067	....	....	....	....

m Box
TE
25 Y

1227

SIXTH ANNUAL REPORT

OF THE

DEPARTMENT OF ENGINEERING

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONNECTICUT

For the Year Ending March 31, 1913

SIXTH ANNUAL REPORT

OF THE

DEPARTMENT OF ENGINEERING

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONNECTICUT

For the Year Ending March 31, 1913

THE CASE, LOCKWOOD & BRAINARD CO.
HARTFORD, CONN.

HARVARD UNIVERSITY
The Library of the Schools
of Landscape Architecture and City Planning

ORGANIZATION.

ROSCOE N. CLARK, City Engineer.
HERBERT G. CLARK, Assistant City Engineer.
HARRY G. WHITMAN, Chemist.
JOHN P. MURPHY, Division Engineer.
WILLARD S. BREWER, Division Engineer.
ROBERT J. ROSS, Assistant Engineer.
ALDEN WELLS, Assistant Engineer.

H. IRVING SKILTON.
JOHN F. DORAN.
E. SELDEN GEER, JR.
FLORENCE L. CHAPIN.
GEORGE ANGELO.
F. PERRY CLOSE.
PAUL P. KIMBALL.
GEORGE S. FRANCIS.
THOMAS ROWLAND.
HAROLD R. WHITE.
CLEMENT M. BRODERICK.
JOSEPH CALLAGHAN.
EDWARD L. DONAGHUE.

REPORT

HARTFORD, CONN., NOVEMBER 10, 1913.

To his Honor the Mayor, and to the Honorable Court of Common Council of the City of Hartford, Connecticut.

Sirs:—

I have the honor to submit the following report of the work of the Department of Engineering for the year ending March 31, 1913.

SEWER DIVISION.

To the sewer division is entrusted the designing of all sewers, the preparation of their layouts, the detailing of the schedules of their assessments under instructions of the Board of Street Commissioners, and the supervising of their construction, including the preparation of estimates for payment.

During the year 3.95 miles of sewer were constructed at a cost of $65,234.39. Among the more prominent works in this list are the final work on the East Side Intercepting Sewer amounting to about $7,000; the completion of the system west of Wood's River, including Albany Avenue, Scarborough Street, Bloomfield Avenue and Prospect Avenue; the work for the year amounting to about $18,000; the rebuilding of old sewers in Kilbourn, Front, and Temple Streets, $5,500, and new sewers in Pleasant and Windsor Streets, $4,000.

As an indication of the expansion of the residence section of the city, may be mentioned the construction of the Albany Avenue and Scarborough Street System of sewers, of sewers in Broadview Terrace and Wilton Street in the southwest part of the city and where more sewer work is contemplated for 1913; sewers in Brown Street and Meadow Street in the south part of the city, and sewers in Newton, Milford, Adams and Thomaston Streets in the west and northwest.

It is to be hoped that the difficulties in the way of financing the Maple Avenue sewer system may be speedily and satisfactorily arranged so that this greatly needed improvement may be completed without further delay.

The completion of the Pumping Station during the summer of 1913 will be the final work on the East Side Flood Protection under present authorization of your Honorable Court. In this connection I desire to repeat the recommendation made in my last annual report, viz.— that inasmuch as the relief to be afforded by the works now under construction will not extend south of State Street owing to the absence of a dyke in front of this section, steps should be taken as soon as the finances of the city will permit, to carry out the general plans for the continuation of this work as outlined in the report of the joint special committee submitted in 1908.

The construction of a conduit to complete the covering in of Gully Brook which was anticipated as a part of the season's work for 1912, is still held in abeyance on account of assessment difficulties.

New work contemplated for the coming season includes a sewer in Terry Road, tributary to Albany Avenue; sewers in Bonner, Catherine, Ledger and Wilton Streets west of Hillside Avenue.

On account of the objections of land owners through whose property it was proposed to extend the Homestead Avenue Intercepting Sewer along the east bank of Wood's River north of Albany Avenue, the Board of Street Commissioners deemed it advisable to consider an alternate location, and in place of the former layout which would have comprised a main sewer extending from the present terminus of the intercepting sewer at Albany Avenue northerly along the river bank to an ultimate destination at Bloomfield, with branches at suitable locations from which to reach the rapidly developing sections lying along the easterly slope of Wood's River watershed, have recommended the extension of the main line of the intercepting sewer along Homestead Avenue itself, to and across Albany Avenue east of the Central New England Railway and thence through a proposed street parallel and closely adjacent to the railway, passing along the watershed further from the river than in the layout first proposed and providing drainage for only those lands east of the railway. While this alternate layout would ultimately be required in any event, as indeed will the one abandoned for the time being, it is much more expensive and satisfies the immediate demands to no greater extent.

Owing to the great area and rapid slopes of the territory tributary to the Homestead Avenue Intercepting Sewer, a conduit of sufficient capacity to carry the run-off due to our heaviest storms would have to be so large as to be very expensive, and would have necessitated the rebuilding of the entire Gully Brook Conduit from Walnut Street to the Park River. The sewer was therefore designed and constructed of a size which would accommodate the normal dry weather sewage flow, based on the water consumption of the district when fully populated, with the intention of providing storm sewers where necessary which would convey the surplus water in times of storm to the Wood's River. One such overflow has already been provided at the Albany Avenue bridge over the river, and as the sewer is extended, as before outlined, and the system of lateral sewers is amplified, it will be necessary to provide others, one being now particularly needed to relieve Blue Hills Avenue north of Westbourne Parkway.

The Maple Avenue system of sewers when completed will deliver rapidly to the Franklin Avenue sewer at South Street, large quantities of storm water that now find their way there slowly and circuitously by means of the natural water courses. As this district becomes further developed and the percentages of roof area and improved street surface increase, this storm water burden will be greater than the Franklin Avenue Sewer can carry, and unless relief is provided, cellar flooding will occur on both sides of Franklin Avenue from Preston Street southerly to Folly Brook.

In order to anticipate this trouble and to prevent damage to existing buildings, and, further, to encourage the development of the lands fronting on this splendid avenue by assuring prospective home seekers of adequate sewerage facilities, I recommend that immediate steps be taken looking toward the construction of a relief conduit to extend easterly from Franklin Avenue through South Street and across private lands to discharge this surplus storm water into the brook which drains the meadows east of Wethersfield Avenue.

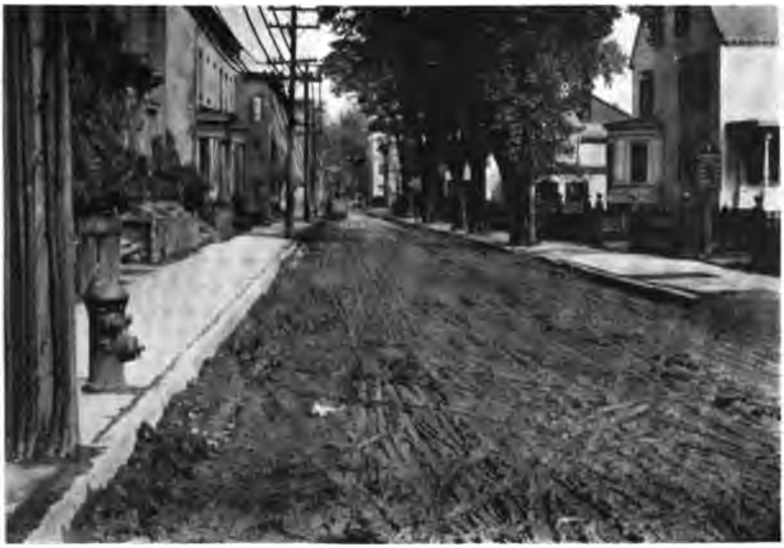
IMPROVED PAVEMENTS

Thus far the city has been limited to the laying of only one-half mile of improved pavement in any one year except on petition of owners of one-half the frontage on any street. As I recommended in my last annual report, this limit should be increased to two or even more miles in order that Hartford may keep up with the progress made in other cities in this respect. A measure is now before the General Assembly for the purpose of making such an amendment to the City's Charter.

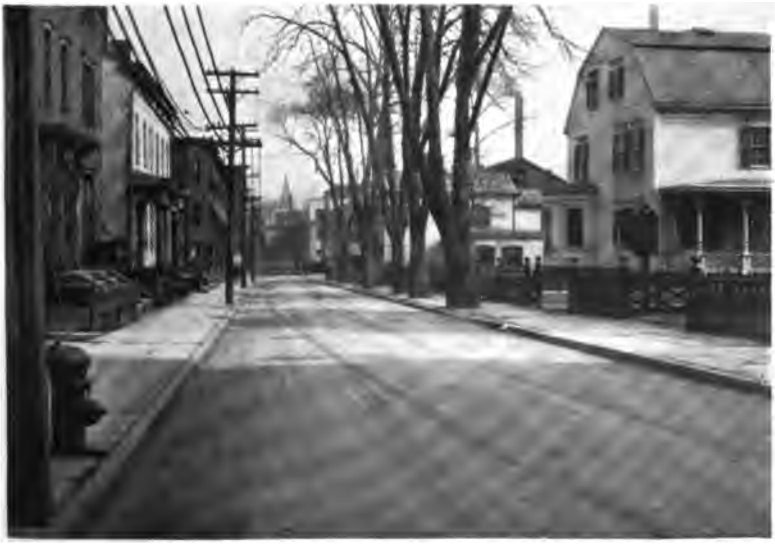
At the present time there are fifteen to twenty miles of our streets upon which should be improved pavement as a substitute for the present unsatisfactory macadam. Among the more important of these streets exclusive of those which are to be paved the coming season, are the following:

Wethersfield Ave. from South Green to the City Line.
Windsor Ave. from Capen to Windsor Streets.
Albany Ave. from East St. to Blue Hills Ave.
Park St. from Main St. to Prospect Ave.
Maple Ave. from Wyllys St. to Morris St.
Arch Street.
Prospect St. from Atheneum St. to Arch St.
Commerce Street.
Grove Street from Talcott St. to Commerce St.
Temple St. from Market St. to Front St.
Talcott St. from Market St. to Front St.
Market St. from Morgan St. to Pleasant St.
Windsor St. from Pleasant St. to Windsor Ave.
Church St. from Trumbull St. to Union Place.
Chapel Street.
Jewell Street.
Wells Street.
Capitol Ave. from Main St. to Washington St.

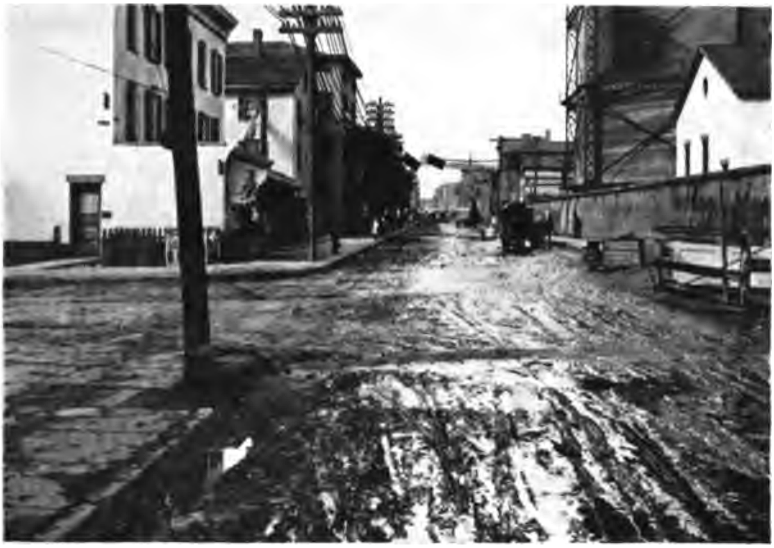
It can readily be seen that at the rate of two miles a year, several years must elapse before our busiest streets are placed in the proper condition required by modern sanitary and economic demands.



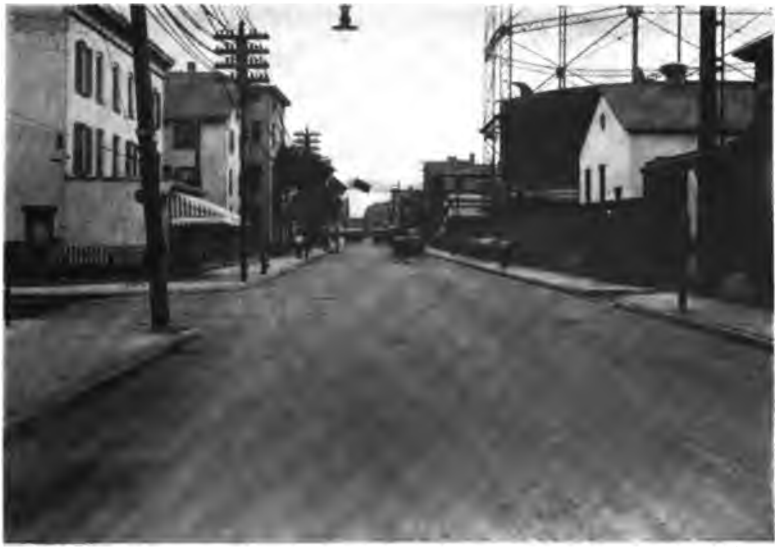
GROVE STREET BETWEEN PROSPECT AND FRONT
Looking East
Showing street surface before paving with Sheet Asphalt



GROVE STREET BETWEEN PROSPECT AND FRONT
Looking East
Showing New Sheet Asphalt Pavement



FRONT STREET
Looking North from Arch Street
Showing street surface before paving with Sheet Asphalt



FRONT STREET
Looking North from Arch Street
Showing New Sheet Asphalt Pavement

NEW PAVEMENT.

The half-mile of new pavement, all sheet asphalt, was laid the past season on the following streets:

Sheldon St. from Union St. to Commerce St.
Front St. from Sheldon St. to State St.
Grove St. from Prospect St. to Front St.
State St. from Front St. to Connecticut Boulevard.

Aside from the general improvement incident to the paving of a street, certain special features in connection with the work on Front Street deserve special mention. On this street in its unimproved condition, differences as great as two feet existed in the elevations of the curbs from one side of the street to the other. The grade from the bridge over the Park River to Sheldon Street was abrupt, and at the rate of six feet rise in one hundred. The curbs are now level across the street, and the objectionable six per cent. grade has been reduced to three per cent. This change necessitated raising the roadway across the bridge between two and three feet, the building of new concrete walks, and the erecting of a new iron railing which is in harmony with the general improvement.

The new improved pavement laid the past season amounted to 10,583.97 square yards and cost $23,081.04.

The total length of streets having improved pavement is now 10.81 miles, and the number of square yards 263,303.93. This includes 240,492.86 square yards of sheet asphalt, 2,095.55 square yards of block asphalt, 942.60 yards of wood block, and 19,361.92 yards of granite blocks.

Paving tables brought up to date and containing valuable data of a miscellaneous nature are appended to this report.

One new table appears which gives the variety of asphalt used in paving each of the several streets.

RESURFACING.

The major portion of the asphalt resurfacing work the past season was done on Main Street. The new surface was substituted for the old, worn pavement which had been doing duty for about sixteen years. The new pavement was laid on the west side from Park Street to Engine House No. 1 and from Wells Street to High Street. On the east side the renewal was from Atheneum Street to Central Row and from State Street to Windsor Street.

With the exception of a strip on the east side from Exchange Corner to Central Row, and from a point just south of Charter Oak Avenue to Wyllys Street, all of the pavement on Main Street has been renewed during the past three seasons, and the roadway is now in excellent condition.

Prospect Street was resurfaced from Central Row to Grove Street, and on Asylum Hill the asphalt strip on the sides of the roadway were renewed from Spruce Street to Garden Street.

In connection with the paving work on Main Street, and in addition to the changes at certain curb corners, as stated elsewhere, decided improvements were brought about at the intersections of Main Street with Gold, Kinsley and Temple Streets. At these points previous to the renewing of the pavement, the Main Street gutters were continuous across the intersecting streets carrying the surface water, and causing disagreeable conditions in wet weather. These intersections are now built up in an approved manner, catch basins have been adjusted or new ones built where necessary, and in addition to presenting a better appearance and being better adapted to all classes of traffic, they are now dry at all times.

This resurfacing work amounted to 19,921.96 square yards and the total cost of the work was $26,000. These figures do not include a small amount of work done by the Connecticut Company.

PAVING REPAIRS.

The necessity for repairs on improved pavements is occasioned in two ways; either by the appearance of worn places or by cuts made in excavating for general underground work. Up to the expiration of the guarantee period on sheet asphalt (usually five years) any worn places which may occur are repaired by the company who laid the original pavement and at their expense. After the guarantee period has expired the city pays for repairs. The cost for restoring the cuts in the pavement made in excavating the streets is borne by the company responsible. The work of restoring the pavement over these cuts is supervised by the city authorities, the paving contractor being paid therefor directly by the corporations responsible.

As a rule, asphalt pavement which has been down eight or ten years is likely to require patching twice a year and this is especially true of some of the earlier pavements laid without the binder course. Without the binder on one-way traffic streets, the asphalt is likely to roll and the pavement ravel at the thin places near the rolls.

For the past ten years all of the asphalt pavement in this city has been laid with a binder course, and it is only in the pavements laid previous to that time that the rolling up of the asphalt has given any trouble.

As the area of improved pavements increases and the necessity continues for opening them to repair leaks, to build duct lines, etc., strict supervision of the back-filling of the trenches becomes very important. Upon the back-fill to a large extent depends the permanency of the surface patch over the cut.

During the past season $9,262.46 was expended for repairs on improved paved streets. This amount proportioned over the 247,801.31 square yards of improved pavement in the city at the beginning of the last fiscal year, gives 3.7 cents as the average cost per square yard for repairs for all pavements.

NECESSITY AND PENALTY FOR OPENING PAVEMENTS.

There is some just and much unjust criticism on the part of the public whenever city streets are dug up for any sub-surface work. A fact which should be understood and accepted is that as long as our city is progressive it will be necessary from time to time to cut the pavements.

The first improved pavement work of any extent done in Hartford was in 1896 or about sixteen years ago. Since that date the city has grown rapidly and therefore the demands upon the telephone, telegraph, and electric light wires, the water and gas pipes, etc., have been largely increased. To meet this increased demand it has been necessary to open the streets to replace these conduits with others of larger capacity. Aside from increased consumption there is always in a progressive city a demand for better service, and to meet this it becomes necessary occasionally to replace certain underground construction. This underground system which becomes antiquated may have been built in accordance with the best practice at the time of its installation, but the world is daily finding better ways of doing things and if the desired improvement calls for opening the street there are only two paths from which to choose, either to put up with conditions as they exist, or to be temporarily inconvenienced while the street is torn up. The ruling that all of the unsightly overhead wires must be placed underground is responsble for many of the openings made in the pavements in the last few years. It will be a sad day for Hartford, as it would be for any city, if the time ever comes when the streets are never cut. When such a time arrives it simply means that the city has ceased to grow, is not progressive but is satisfied with conditions as they are.

The point I wish to bring out is that when a street is torn up it does not necessarily mean mismanagement, as many unthinking and uninformed persons are inclined to believe.

Emergencies may occur at any time such as sudden breaks, which will necessitate opening the street, but as construction methods and equipment improve, these occasions should become less frequent. I could point to a few cases where a new street has been torn up a year or two after being built, when with proper study and foresight on the part of the company responsible, their changes might have been made previous to the paving of the street.

The various companies interested are given ample previous notice of the city's intended street improvements, and are instructed to complete any necessary repairs or changes before a fixed date in advance of the time it is expected that the paving work will begin. In view of this fact I felt that when it becomes necessary for any company to open a newly laid pavement solely on account of the ignoring of these notices, or through lack of ordinary foresight on their part, permission to cut the pavement should be granted only under special conditions. Under this provision, permission should be granted only on condition that the company forfeit a substantial sum of money to the city as liquidated damages suffered by the city on account of injury to the pavement, and loss of use of the street during such time as the latter may be obstructed.

PAVING PROPOSED FOR 1913.

During the coming season new paving will be laid on the following streets:

SHEET ASPHALT—

Front Street from State St. to Morgan St.
Morgan Street from Market St. to Front St.
Pleasant Street from Windsor St. to the Railroad.
Marsh Court from Market St. to Village St.

GRANITE BLOCKS—

Church Street from Spruce St. west about 50 feet.
Spruce Street from Church Street north about 500 feet.

Farmington Avenue will also be resurfaced with sheet asphalt from Asylum Street to Woodland Street. The work will be started after the completion of the duct lines which is to be installed by The Hartford Electric Light Company and the relaying of the Street Railway tracks by the Connecticut Company. New asphalt will be laid about the triangle at the Tunnel as soon as the proposed new track-work is finished.

CORNERS CUT BACK TO LONGER RADII.

In connection with the paving of Main Street, the following curb corners were cut back to curves of longer radii in order to facilitate the turning of these corners by vehicles.

Both corners of Main Street and Capitol Avenue; the south corner of Main and Kinsley Streets; both corners of Main and Temple Streets; the north corner of Main and Talcott Streets; both corners of Main and Trumbull Streets; and at the angle in the west curb of Main Street opposite Morgan Street. The northwest and southeast corners of State and Front Streets were also cut back in connection with the paving of State Street and Front Street; and the south corner of Allyn Street and Union Place, and the east corner of Farmington Avenue and Sisson Avenue were also cut back. At the latter corner there is now room for a team and a car to pass simultaneously with perfect safety. In connection with this improvement the generous public spirit of the owner who gave the necessary land to the city free of charge is to be commended, and the fact that the Connecticut Company contributed liberally toward the actual physical cost of the work should be mentioned. Both corners of Francis Avenue and Park Street were cut back and here again the change at the west corner was made possible through the cooperation of the owner who donated the necessary land free of expense to the city.

The west corner of Laurel Street and Park Street was changed to give more clearance between the curb and the track. In this case land was donated by the owners and the work was paid for by the Railroad Company.

TRACK WORK.

The track work during the past season was not as extensive as in some previous years. Profiles were furnished the Connecticut Company and the following work was done under the supervision of this department.

On Park Street new double tracks were laid from Main to John Streets and from Sisson Avenue to Laurel Street.

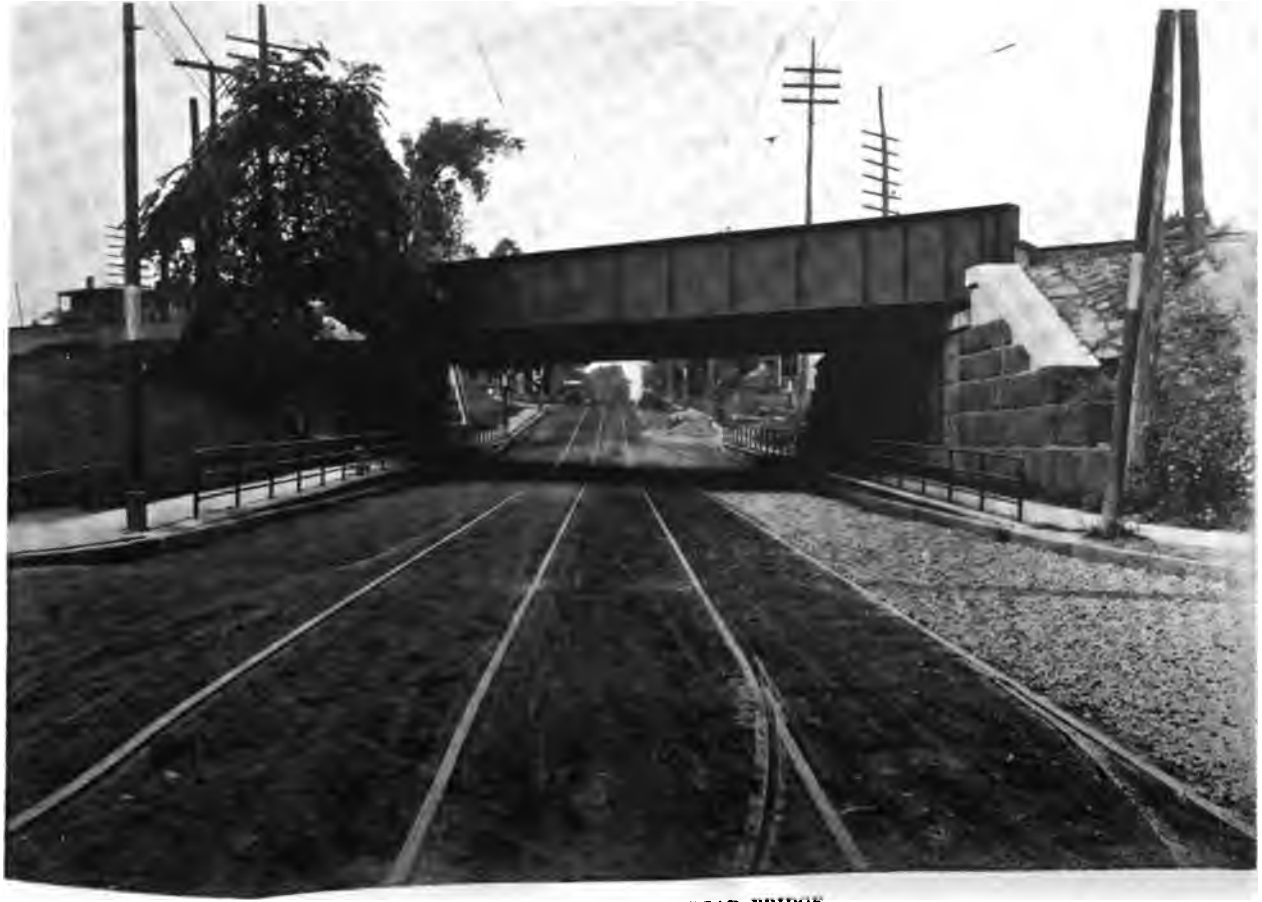
On Franklin Avenue the east track was renewed from Bond Street to Brown Street.

On State Street the tracks were regraded in connection with the new paving work.

On Blue Hills Avenue from Holcomb Street to the Bloomfield line a new track was laid in such a location that it will be the east track of a double track line when the street is ultimately double tracked.

On Wethersfield Avenue a change was made from single to double tracks between the City Line and a point near Eaton Street.

It has been the custom for several seasons for the Street Railway Company to build a concrete foundation under its tracks in a street upon which an improved pavement is to be laid. This practice as shown by the perfect condition of the pavement adja-



PARK STREET AT RAILROAD BRIDGE

Looking West

Showing New Bridge, Combination Curb and Retaining Walls, Iron Railings and Widened Roadway

cent to the rails on Asylum Street and Ford Street should always be followed.

TRACK WORK PROPOSED FOR 1913.

Track work planned for the coming season is as follows:

On Farmington Avenue new double tracks will be laid from Asylum Street to Sigourney Street.

On Morgan Street tracks will be overhauled in connection with the paving of the street.

On Wethersfield Avenue the tracks will be relaid from Elliott Street to Eaton Street.

On Main Street at the Tunnel new tracks will be installed.

UNDERGROUND CONDUITS.

The policy of placing wires underground has been continued during the past year, and the various corporations have built conduits in about two miles of streets as selected by the Board of Street Commissioners. In this connection it should be noted that the Connecticut Company has made a good start in the work of placing their feed wires underground, which work they are expected to complete throughout the city within the next two years. An effort is made to have the installation of the duct lines precede the paving or repaving of a street, and the improvements on Front Street from Sheldon Street to Potter Street were accordingly held up several weeks to enable the Connecticut Company to complete their conduits.

The locations for the various duct lines are assigned by this department, and the corporations are expected to conform to the layouts furnished them. Before assigning a location, the positions of all other pipes and conduits which may be already in the street, is ascertained as accurately as possible, and a study is made of the probable future demands for room in the street before a new location is given or approved.

During the construction of the conduits, frequent inspections are made with a view to locating any underground pipe lines of which no good records exist and to insure that the work is being carried on to the best interest of the street and the city.

CONCRETE CURBS AND SIDEWALKS.

The use of concrete as a material for curb and sidewalk construction is steadily growing in favor in this city, and during the past season several miles of each have been constructed.

Painstaking effort on the part of the builders and constant vigilance on the part of the inspectors are necessary in order to obtain work that is both stable and of good appearance.

Concrete curbs are particularly adapted for use on residential streets on account of the uniformly finished appearance they give to a street, and because if once properly constructed almost no further expenditure for maintenance is necessary.

Concrete walks may be used to advantage on all classes of streets, and if the surfaces are properly treated, are less slippery than any other smooth-surfaced walk.

A new concrete walk was built the past season on the roadway extending across Pope Park from Laurel Street to Park Terrace. This walk is eight feet wide and is built upon a foundation of cinders provided with a tile underdrain. The work was done by contract, for the Park Department.

Where a street is to be newly paved with material other than macadam, it is invariably found necessary to have the curbs reset to proper line and grade.

Under the present system it is customary for the Board of Street Commissioners to have notices sent to owners of abutting property ordering them to have the curbs reset within a specified time, in advance of the paving work. The result of this is that this resetting of curbs is carried out in a manner lacking in uniformity and in regularity, and at an increased cost both to the property owner and to the city; to the former because it obviously costs more per foot to set fifty feet of curb than it does to set five hundred or a thousand feet, and to the city because employees in this department are required to make many visits to the work at irregular intervals according to the needs of the different contractors doing the work. The economical way to accomplish the desired result is to have the entire work of resetting curbs on any street done by one contract after competitive bidding, and then to apportion the cost among the abutting owners according to their respective frontages. By letting the work as a whole the cost to the owners would be less, and the work could be done consistently and could be handled to better advantage by the engineers.

PARK STREET AT RAILROAD CROSSING.

A much needed improvement has been brought about the past year on Park Street at the railroad bridge. At this point previous to the late changes the roadway was extremely narrow and the overhead room so slight that only the smallest trolley cars could pass under the bridge. In addition to the regular abutments the bridge was supported by columns resting upon brownstone walls at either side of the restricted roadway.

A new, modern steel-girder bridge has been constructed by the Railroad Company at an elevation which will admit of the passing of the largest trolley cars. With this new bridge, the supporting columns, which with the old bridge necessitated the narrowing of the roadway, have been dispensed with. The roadway is now double-tracked and is thirty-six feet wide. A combination retaining wall and curb of concrete has been built which carries the sidewalk at an elevation of from one to four feet above the roadway surface. A substantial pipe railing has been erected, the supporting posts being imbedded in the concrete wall. The street has been repaved with granite blocks and new sidewalks have been laid. The entire expense of the work was assumed by the Railroad Company. A view showing the conditions as they now exist appears in this report.

ELEVATIONS IN HARTFORD.

This office is frequently called upon for information in regard to the relative elevations of streets in different parts of the city, and believing that the figures will be of general interest, a list of elevations at several different points about the city is appended.

In the first place it should be made clear just what is meant when we say that a street is at elevation 100 or 200 or whatever the figures may be. In Hartford all elevations are based upon the mean low-water level of Long Island Sound at Saybrook, this elevation being taken as zero. Therefore when we say, for instance, that a certain point in our city is at elevation one hundred and thirty-one and five-tenths, (131.5), we are but saying in fewer words that such point is one hundred and thirty-one and one-half feet above average low-water at Long Island Sound. The elevation of the center at the north end of the east balustrade at the State Street entrance to the Post Office was established by the United States Army Engineer Corps as elevation 58.116 feet, and this value was used as a datum in the leveling work in connection with the building of the new Connecticut River Bridge, and all freshet levels recorded by the gauge at the steamboat docks are also with relation to this datum. There appears to be a discrepancy of 1.574 feet between the city's system of elevation which was established some years ago, and that of the United States Army Engineer Corps. By the city system the elevation of the balustrade at the Post Office previously described is 59.690 feet, and to reduce the army elevations to City datum, 1.574 feet should be added. This would make the record freshet of 1854 recorded as 29 feet 10 inches (29.83), 31.404 by the city datum. The range in elevation from our lowest to our highest streets is about 210 feet. The lowest streets in the city are of course those adjacent to the Connecticut River. Many of these streets were formerly flooded by every considerable freshet. The flooding has been partly overcome by the building of the Connecticut River bridge approach and Connecticut Boulevard; the raising of the freight yards north of Morgan Street and the construction of the new east side sewer and pumping station.

The highest street in Hartford is Prospect Avenue at the summit between Asylum Street and Albany Avenue, the elevation being about 230 feet. The second highest street is Holcomb Street at the Blind Institution where the elevation is about 180 feet.

The Engineering Department has established an extensive system of bench marks or reference points of elevation throughout the city, the elevations of which are determined to a thousandth of a foot. These bench marks are used for all leveling work and are established upon definite points not likely to be disturbed.

A list of elevations at various points throughout the city follows:

Main St.	at	City Hall	is	at	elevation	about	61.80	feet
Main St.	“	Tunnel	“	“	“	“	64.50	“
Albany Av.	“	Blue Hills Av.	“	“	“	“	64.00	“
Albany Av.	“	Prospect Av.	“	“	“	“	147.50	“
Blue Hills Av.	“	Tower Av.	“	“	“	“	148.50	“
Blue Hills Av.	“	City Line	“	“	“	“	143.30	“
Windsor Av.	“	Mahl Av.	“	“	“	“	84.40	“
Windsor Av.	“	Windsor St.	“	“	“	“	33.20	“
Windsor Av.	“	City Line	“	“	“	“	51.00	“
Windsor St.	“	R. R. cross.	“	“	“	“	31.50	“
Asylum St.	“	Junction with Farm. Av	“	“	“	“	83.90	“
Asylum St.	“	Woodland St.	“	“	“	“	69.60	“
Asylum St.	“	Prospect Av.	“	“	“	“	149.80	“
Farmington Av.	“	Cathedral	“	“	“	“	88.00	“
Farmington Av.	“	Woodland St.	“	“	“	“	59.50	“
Farmington Av.	“	Sisson Av.	“	“	“	“	71.00	“
Farmington Av.	“	Prospect Av.	“	“	“	“	100.60	“
Park St.	“	Main St.	“	“	“	“	62.00	“
Park St.	“	Washington St.	“	“	“	“	83.50	“
Park St.	“	Zion St.	“	“	“	“	94.50	“
Park St.	“	Sisson Av.	“	“	“	“	67.70	“
Park St.	“	Prospect Av.	“	“	“	“	75.00	“
Capitol Av.	“	Washington St.	“	“	“	“	82.50	“
Summit St.	“	Vernon St.	“	“	“	“	155.20	“
New Britain Av.	“	Oliver St.	“	“	“	“	132.00	“
New Britain Av.	“	City Line	“	“	“	“	52.00	“
Wethersfield Av.	“	Bond St.	“	“	“	“	60.30	“
Wethersfield Av.	“	City Line	“	“	“	“	34.60	“
Franklin Av.	“	Bond St.	“	“	“	“	47.20	“
Franklin Av.	“	City Line	“	“	“	“	51.00	“
Maple Av.	“	Bond St.	“	“	“	“	85.00	“
Maple Av.	“	Junction Fairfield Av.	“	“	“	“	152.00	“
Fairfield Av.	“	White St.	“	“	“	“	158.50	“
Fairfield Av.	“	summit S. of N. Britain Av.	“	“	“	“	165.00	“

TESTING LABORATORY.

In the past year the usual chemical and physical tests were made on the many different materials which enter into the city's uses, such as asphalts, oils, coal, cements, sand, paint, rubber hose, and in fact everything that requires examination. It may be of interest at this time to give a brief description of the sources of our asphalt supply. Trinidad natural asphalt is obtained from the island of Trinidad located in the Caribbean Sea a little north of the north coast of South America. This island furnishes two grades of material, one which is called pitch lake asphalt, and the other, land asphalt. The lake asphalt is a large deposit of the material, in what is supposed to have been a large mud volcano. The area of this circular lake of asphalt is about one hundred and twenty-seven acres in extent, and the depth is not definitely determined but it is estimated that there are many millions of tons in the mass. This crude asphalt is refined by melting and evaporating off the water which it contains, after which it is ready for use at the asphalt paving plants.

The Trinidad land asphalt is of an inferior grade to that found in the lake and is evidently asphalt which has run over the ground from that source. The mass being in thin layers has been more or less affected by the weather, etc. This asphalt is of such a character that it is not used to any great extent in the asphalt paving indusry.

Bermudez pitch lake asphalt, a natural asphalt which has been used to a large extent in this city, is found in the State of Bermudez in the northern part of Venezuela a few miles from the coast and almost directly west of the deposit found in the island of Trinidad. This deposit is different in character from the one previously described, as its source seems to be from what is known as maltha springs. From these springs there exudes at the present time a soft material about the consistency of a heavy coal tar which becomes harder as the distance from the source increases. This lake of asphalt is about one and one-half square miles in area, composed of maltha springs and the hardened, crusted material which has spread out from them. The overflow has been hardened by the action of the sun and fires which have swept over it, so that a crust has been found nearly two feet thick and from under this the asphalt is obtained which after refining is used in the making of pavements.

A class of asphalts very extensively used in paving work is obtained by the distillation of petroleums which have an asphaltic base; that is, after the distillation of such petroleums an asphaltic residue remains. Such oils are found in Kansas, California, Texas and Mexico. The eastern oils after distillation leave a paraffine residue instead of asphalt. In the preparation of such asphalts or residual pitches, extreme care must be taken that in the process of distilling off the lighter or more volatile portions, a temperature is not reached which will injure it for use as a paving cement. At the present time these precautions are taken and many of these asphalts are used with satisfaction. California residual asphalt has been used in paving some of the streets in this city.

In the uses of the various asphalts above described, great care is taken to see that they meet the definite specifications set forth by the city. The contractors bidding on work are obliged to hand in samples of asphalt and oils with their bids which must pass the specifications in order that the bid may be considered. At the asphalt plant everything that enters into a new pavement is carefully considered. The sand is graded, the asphaltic cement is brought to the proper consistency, or softness, the proper amount of filler or limestone dust is determined. If the traffic on a street to be paved is heavy, the sand must be finer and a more dense mixture made, while on a light traffic street the sand can be coarser and yet be better for that particular street. In mixing the materials, the sand and asphaltic cement are heated separately and definite amounts of each are added to the mixing machine with the proper amount of limestone dust, after which the mixture is turned over and over until it becomes a homogenous mass. The dust is added to fill the voids in the sand and increase the stability of the finished pavement. After the mixing is completed the material is ready to be carted to the street and laid. In this city a course of binder is laid previous to the topping. This binder is properly graded, stone coated with pure asphaltic cement and gives the topping material a chance to stick or bind. This obviates the rolling up or the formation of waves in the asphalt surface which has occurred in a few of the earlier pavements.

WORK DONE BY STREET DIVISION.

To the Street division of the Department is assigned the variety of work involved in the layout of new streets, the changes in building and veranda lines on existing streets, and the staking out of lines and grades in connection with their development, construction and maintenance. Merestones are also set at angles, curves, and street intersections to permanently define the street lines. Surveys and plans are made for various purposes. A description of the work done the past year, is as follows:

Layouts were prepared for the acceptance of the following streets. Barker, Bonner, Bradford, Catherine, Cherry, Edgewood, Hamilton, Harwich, Henry, Ledger, Newbury, North Front, Roxbury, Thomaston, and Wilton Streets; Capitol Avenue and Francis Avenue and West Hartford Boulevard.

Layouts were prepared for changes in street, building or veranda lines on Bonner, Center, Eaton, East, Enfield, Forest, Greenwood, Holcomb, James, Park, Plainfield, and Prospect Streets, and on Fairfield, Farmington, Hillside, New Britain and Wethersfield Avenues.

New street lines were established at the corners of several streets to provide the necessary space for the subsequent increase in the curb radii. This was done at the southeast corner of Farmington and Sisson Avenues; also at the southwest corner of New Britain avenue and Broad Street.

Sidewalk and curb lines were established on Blue Hills, Francis, Farmington, Homestead, New Park and Prospect Avenues, and on Front, Garden, Park, White and Windsor Streets, and on Marsh Court.

New curb radii were established on Main Street at the corners of Trumbull, Talcott, Temple, Capitol Avenue, and the angle opposite Morgan Street; on Park Street at the southwest corner of Zion Street, and on Allyn Street at the southeast corner of Union Place.

Layouts were prepared for the establishment of new grades on Arch, Broad, Case, Cheshire, Front, Pleasant, White and Windsor Streets, and Marsh Court.

Each year since 1902 the Engineering Department has set merestones to define the lines of streets in various parts of the city. It is obviously of great value to all city and private surveyors as well as to all property owners to have the street lines permanently marked. Reinforced concrete monuments five feet in length have, after three years' trial, proved to be the most satisfactory form to meet the soil conditions in Hartford.

One hundred and fifty of these concrete monuments were made at the City Yard and were set at the angles, curves, and intersections of various streets, all stones being set on offset lines two feet out from the street lines.

GRADE CROSSING ELIMINATION.

On December 20, 1912, I submitted a preliminary report to your Honorable Court's Joint Standing Committee on Railroads, *in re* elimination of railway grade crossings along the line of the New York, New Haven and Hartford Railroad south of Union Station. On the recommendation of your committee your Honorable Court instructed the Corporation Counsel to petition the Public Utilities Commission for an order for the elimination of such crossings, which petition was afterward amended by including therein a petition for an order for a new crossing on the line of Capitol Avenue extended westerly from Willow Street. This matter is now before the Public Utilities Commission and an early and favorable finding is hoped for.

In my last annual report I outlined briefly the action taken in regard to the elimination of the crossings at Avon, Windsor and Russell Streets. Since then no definite information has been received from the Railroad Company, and I am inclined to believe that it will not voluntarily unite with the city in a petition for the elimination of these crossings. In view of the fact that these crossings are a greater menace to human lives and cause far greater inconvenience to vehicular traffic than any other crossings in the city, steps should be taken without further delay to bring the matter officially to the attention of the Public Utilities Commission.

PROPERTY TRANSFERS.

The customary routine work in connection with recording all transfers of real estate and plotting all sub-divisions on reference maps, was attended to as in the past, about three thousand transfers being recorded during the year.

The usual set of property maps, one hundred and thirty-three in number, and including the area of the entire city, was made for the Board of Assessors.

Eighteen maps filed by land owners with the Town Clerk were transferred to the map-book in his office.

The annual street sprinkling assessment containing about ten thousand names and covering upward of eighty-six miles of sprinkled streets was prepared for the Board of Street Commissioners.

DRAIN LAYERS.

Forty-nine drainlayers licenses were issued for the calendar year of 1912, under which 747 permits were issued. The total number of permits issued under the present system which was adopted in May, 1903, is 4,817 to date of December 31, 1912.

I acknowledge with appreciation the support and cooperation extended to the department by your Honorable Court and by the several other boards and departments of the City Government. The assistant engineers and other employees in the department have been loyal and efficient in the performance of their several duties.

Respectfully submitted,

ROSCOE N. CLARK,
City Engineer.

LIST OF SEWERS BUILT DURING YEAR ENDING MARCH 31, 1913

Street.	Location.	Contractor.	Size.	Material.	Length.	House Connections. No.	House Connections. Length.	Man-holes.	Cost.
Adams Street	Homestead Ave. to Albany Ave.	John Dinallo	12"	Tile	633'	31	465'	4	$ 1,588.52
			10"	Tile	280'				
Affleck Street	Lincoln St., to Allen Pl.	Rocco Branciere	8"	Tile	184'	1	15'	0	207.00
Albany Avenue & Scarborough Street	Wood's River to Prospect Ave. Albany Ave. to Asylum Ave.	Hartford Paving and Construction Co.	36"	Brick	276'	19	340'	15	9,664.35
			30"	Tile	529'				
			24"	Tile	249'				
			20"	Tile	1467'				
			18"	Tile	301'				
			12"	Tile	503'				
			10"	Tile	324'				
			24"	Cast Iron	102'				
Bloomfield Avenue	Albany Ave. to City Line	Berardino Silvestri	18"	Tile	14'	25	325'	5	6,330.00
			20"	Tile	600'				
			24"	Tile	914'				
Broadview Terrace	Chandler St. northeasterly	Joseph Dart	12"	Tile	92'	0	0'	1	323.90
			15"	Tile	149'				
Brown Street	George St. to Campfield Av. Ext.	Berardino Silvestri	10"	Tile	300'	13	195'	1	936.00
Center Street	Mather St. to Seyms St.	Frank Dinallo	12"	Tile	242'	4	70'	2	417.81
Chadwick Avenue	Park St. to Smith St.	A. W. Bryne Co. Inc.	15"	Tile	166'	28	350'	4	1,348.42
			12"	Tile	251'				
			10"	Tile	246'				
East Side Interceptor	Tile branches	Hartford Paving and Construction Co.	24"	Tile	244'		916'	8	6,964.08
in Avon Street	Village to North Front St.		12"	Tile	338'				
North Front Street	Avon St. to near Pequot St.		12"	Tile	155'				
Pleasant Street	Market St. to Railroad	Joseph Tozzoli	15"	Tile	155'			2	270.00
Edgewood Street	Interceptor to Enfield St.		12"	Tile	37'				

LIST OF SEWERS BUILT DURING YEAR ENDING MARCH 31, 1913—Continued

Street.	Location.	Contractor.	Size.	Material.	Length	House Connections.		Man-holes.	Cost.
						No.	Length.		
Essex Street	Maple Ave. to Retreat Ave.	John Dinallo	10"	Tile	442'	18	180'	3	861.93
Front Street	Talcott St. to Temple St.	John Manocchio	15"	Tile	357'	21	310'	1	1,207.98
Front Street	State to Temple (See Kilbourn)								
Grand Street	Oak to Lafayette (See Oak St.)								
Homestead Avenue	Woodland St. to E. of Stirling St.	Domenick Nero	18"	Tile	265'	8	120'	4	1,037.26
			15"	Tile	230'				
			10"	Tile	200'				
Interceptor Repairs	N. of Park St. & W. of Park River	Berardino Silvestri	36"	Reinforced Concrete	368'	0	0'	1	6,448.55
Kilbourn Street	Charles St. to Front St.	John Manocchio	20"	Tile	17'	45	1,062'	8	5,455.65
Front Street and	Kilbourn St. to State St.		24"	Tile	487'				
Temple Street	Kilbourn St. to Temple St.		18"	Tile	279'				
	Front St. to Market St.		15"	Tile	473'				
Meadow Street	Wethersfield Ave. easterly	Hfd. Pav. & Cons. Co.	10"	Tile	300'	8	100'	2	440.36
Milford Street	Homestead Ave. to Albany Ave.	John Dinallo	24"	Tile	750'	6	90'	6	3,449.85
			20"	Tile	439'				
			18"	Tile	112'				
			15"	Tile	57'				
Newton Street	Park St., northerly	Berardino Silvestri	12"	Tile	650'	20	305'	3	1,293.09
Niles Street and Private Lands	Niles St. southerly between Sigourney & Marshall Sts.	J. J. Russo	10"	Tile	152'	0	0'	0	190.00
Oak Street and Grand Street	End of old sewer to Grand St.	John Dinallo	12"	Tile	166'	11	179'	2	420.86
	Oak St., to Lafayette St.		10"	Tile	209'				
Olds Place	Wethersfield Ave. easterly	Joseph Tozzoli	—	—	—	—		1	40.00
Pleasant Street and Windsor Street	Village St. to Windsor St.	Hartford Paving & Construction Co.	24"	Tile	169'	34	170'	4	3,985.72
	Pleasant St. to near Main St.		18"	Tile	206'				
			15"	Tile	299'				
			10"	Tile	151'				

Prospect Avenue	Albany Ave. to Top of Hill	Hfd. Pav. & Cons. Co.	15"	Tile	65'	0	0'	4	1,835.13
			12"	Tile	300'				
			10"	Tile	726'				
Prospect Street	Near Arch St. to Elk's Club								
Scarborough Street	Albany Ave to Asylum St. (See Albany Avenue)	Edward Balf Co.	10"	Tile	300'	1	15'	1	800.00
State Street (Sanitary Sewer only)	Commerce St. to W. of Front St.	Berardino Silvestri	12"	Tile	408'	18	90'	4	2,173.00
			15"	Tile	342'				
Temple Street	Front St. to Market St. (See Kilbourn St.)	John Manocchio	12"	Tile	274'	1	15'	1	736.78
Temple Street	Market St. westerly		18"	Tile	10'				
Thomaston Street	Blue Hills Ave. to Ridgefield St.	John Manocchio	10"	Tile	352'	0	0'	3	769.90
			12"	Tile	282'				
Wilton Street	Bonner St. across private lands to Wilton St. thence to Zion St. & to Hillside Ave.	F. B. & W. H. O'Neil	33"	Brick Concrete	485'	0	0'	7	9,000.00
			15"	Tile	234'				
			10"	Tile	475'				
Windsor Street	Avon to Pleasant Sts.	Domenick Nero	20"	Tile	295'	57	1,264'	4	3,038.25
			18"	Tile	393'				
Windsor Street	Pleasant to near Main St. (See Pleasant St.)		12"	Tile	245'				
				Totals	20,888'	363	6,576'	101	65,234.39
				Miles	3.95				

Summary by Materials

Tile . . . . 19,128 ft. = 3.62 Miles = 91.7% Total length
Reinforced Concrete 368 ft. = 0.07 " = 1.7% " "
Brick and Concrete . 485 ft. = 0.09 " = 2.3% " "
Brick . . . 805 ft. = 0.15 " = 3.8% " "
Cast Iron . . . 102 ft. = 0.02 " = 0.5% " "
20,888 ft. = 3.95 " = 100.0% " "

Summary by Method of Payment	Length in feet	Length in miles	Per cent total length	Cost	Per cent total cost
Built and paid for by private parties under the Drain Layers' Rules	3,287	0.62	15.7	$6,536.80	10.0
Cost wholly assessed on property benefited	11,708	2.22	56.0	28,247.22	43.3
Cost divided between city and property	4,045	0.76	19.4	14,864.74	22.8
97% cost paid by city (East Side Intercepting Sewer System) .	1,480	0.28	7.1	9,137.08	14.0
Entire cost paid by city	368	0.07	1.8	6,448.55	9.9
	20,888	3.95	100.0	$65,234.39	100.0

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1913

STREET	LOCATION	DESCRIPTION	KIND	Tracks	Price per sq.yd.	Assessment per front foot	Final Payment	Guarantee Expires
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	N. side & tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Allyn Street	Trumbull to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	June 12, 1899	June 12, 1904
Amer. & Cen. Rows	E. of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Amer. & Cen. Rows	E. of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Asylum Street	Spruce to Farmington Ave.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street	Spruce to Farmington Ave.	Tracks relaid	Granite Block	D. T.			1911	
Asylum Street	Main to Ford St.	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce to Farmington Ave.	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sept. 26, 1898	Sept. 26, 1903
Asylum Street	Main to Spruce St.	Repaved	Sheet Asphalt	S. & D	2.28	By City	Oct. 12, 1908	Oct. 12, 1918
Asylum Street	Spruce to Garden St.	N. side resurfaced						
Asylum Street	Spruce to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Atheneum Street	Prospect to Main St.	Paved	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Capitol Avenue	Lafayette to Park River	Paved	Sheet Asphalt	No			1897	
Capitol Avenue	Lafayette to Broad St.	N. side resurfaced	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 26, 1905
Capitol Avenue	Lafayette to Broad St.	S. " resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Broad St. to Park River	Both sides	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
		resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.			1895	
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	2.65	By City	Dec. 6, 1911	No guarantee
Central Row	Main to Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct 12, 1896	Oct. 12, 1901
Central Row	Main to Post Office	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Church Street	Main to Trumbull St.	Paved	Sheet Asphalt	No	2.59	2.1163	Nov. 8, 1897	Nov. 8, 1902

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1913—Continued

STREET	LOCATION	DESCRIPTION	KIND	Tracks	Price per sq.yd.	Assessment per front foot	Final Payment	Guarantee Expires
Church Street	Main to Trumbull St.	Resurfaced	Sheet Asphalt	No	$1.67	By City	July 28, 1909	July 28, 1914
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Farmington Avenue	Asylum to Woodland St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue	Sigourney to Woodland St.	Tracks relaid	Sheet Asphalt	D. T.			1909	
Farmington Avenue	Woodland to Tremont St.	Paved	Sheet Asphalt	D. T.	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue	Tremont to Prospect Ave.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ford Street	Pearl to Asylum St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sept. 26, 1898	Sept. 26, 1903
Ford Street	Pearl to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1918
Front Street	State to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Gold Street	Main to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sept. 11, 1898	Sept. 11, 1903
Grove Street	Main to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No			1898	
Haynes Street	Pearl to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church St. to Main St.	Resurfaced	Sheet Asphalt	No	1 27	By City	May 19, 1911	May 19, 1916
Hopkins Street	Broad to Asylum St.	Paved	Sheet Asphalt	No	2.58	2.3865	June 12, 1899	June 12, 1904
Kinsley Street	Market to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903
Laurel Street	Bridge over Park River	Repaved	Brick	S. T.	2.40	By City	July 11, 1900	
Laurel Street	Bridge over Park River	Paved	Brick	S. T.			1894	
Lewis Street	Pearl to Gold St.	Paved	Sheet Asphalt	No	2.51	1.808	Sept. 24, 1900	Sept. 24, 1905
Main Street	Arch to Morgan St.	Paved	Sheet Asphalt	D. T.	2.40	5.4887	Dec. 14, 1896	Dec. 14, 1901
Main Street	Morgan to Windsor Ave.	Paved	Sheet Asphalt	D. T.	2.70	4.6395	Oct. 11, 1897	Oct. 11, 1902
Main Street	Wyllys to Arch St.	Paved	Sheet Asphalt	D. T.	2.66	4.5750	Oct. 25, 1897	Oct. 25, 1902
Main Street	State St. north	Tracks repaved	Wood Block	D. T.			1903	
Main Street	Engine House No. 1 to Wells	W. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Charter Oak Ave. to Atheneum St.	E. " resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915

Main Street	Jefferson to Park St.	W. side resurfaced	Sheet Asphalt	D. T.	$1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Windsor St. to Windsor Ave.	N. " resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Jefferson to Park St.	Tracks resurfaced	Sheet Asphalt	D. T.			1912	
Main Street	Wyllys to N. end of South Green	Tracks resurfaced	Sheet Asphalt	D. T.			1908	
Main Street	Park to No. 1 Engine House	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Triangle N. end S. Green	Resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Atheneum to Cen. Row	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	State to Windsor St.	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Wells to Ann St.	W. " resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Market Street	State to Temple St.	Paved	Sheet Asphalt	S. T.	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1903
Market Street	Temple to Morgan St.	Paved	Sheet Asphalt	S. T.	2.56	2.3270	Oct. 9, 1800	Oct. 9, 1904
Market Street	State to Morgan St.	W. side & tracks resurfaced	Sheet Asphalt	S. T.	1.65	By City	Aug. 4, 1909	Aug. 4, 1914
Morgan Street	Market to Main St.	Paved	Granite Block	S. T.	3.09	2.1525	Dec. 27, 1898	Aug. 27, 1899
Mulberry Street	Main to Wells St.	Paved	Sheet Asphalt	No	2.55	2.6970	Nov. 11, 1898	Nov. 14, 1903
Park Street	Under R. R. Bridge	Paved	Granite Block	S. T.	3.35	By City	Nov. 27, 1800	July 27, 1900
Park Street	Under R. R. Bridge	Relaid	Granite Block	S. T.	1.35	By City	Oct. 4, 1910	No guarantee
Park Street	Under R. R. Bridge	Repaved	Granite Block	D. T.	Paid	By R. R.	1912	
Park Street	Bridge over Park River	Paved	Sheet Asphalt	D. T.		By R. R.	1898	
Park Street	Bridge over Park River	Relaid	Sheet Asphalt	D. T.	Paid		1912	
Pearl Street	Main to Ford St.	Paved	Block Asphalt	S. T.	2.89	3.8380	July 22, 1895	July 22, 1900
Pearl Street	Main to Ford St.	Repaved	Sheet Asphalt	S. T.	2.70	By City	Sept. 10, 1903	Sept. 10, 1913
Pearl Street	Main to Ford St.	Tracks relaid	Sheet Asphalt	D. T.			1910	
Pleasant Street	Winthrop to Main St.	Paved	Sheet Asphalt	No	2.56	2.3373	July 11, 1898	July 11, 1903
Pratt Street	Main to Trumbull St.	Paved	Brick	No		By City	1892	
Pratt Street	Main to Trumbull St.	Surfaced	Sheet Asphalt	No	1.68	1.4285	Aug. 14, 1899	Aug. 14, 1904
Prospect Street	Atheneum St. to Central Row	Paved	Sheet Asphalt	No	2.55	2.5256	July 25, 1898	July 25, 1903
Prospect Street	Grove to Central Row	Resurfaced	Sheet Asphalt	No	1.27	By City	Oct. 23, 1912	Oct. 23, 1917
Sheldon Street	Main to Union St.	Paved	Sheet Asphalt	No	2.20	2.5747	Oct. 4, 1911	Oct. 4, 1916
Sheldon Street	Union to Commerce St.	Paved	Sheet Asphalt	No	2.16	3.0100	Oct. 23, 1912	Oct. 23, 1917
Spruce Street	Asylum to Church St.	Paved	Sheet Asphalt	No	2.51	3.0163	Oct. 1, 1900	Oct. 1, 1905
State Street	Main to Commerce St.	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct 12, 1896	Oct. 12, 1901
State Street	City Hall to Main St.	Repaved	Sheet Asphalt	S. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. westerly	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. to Conn. Boulevard	Repaved	Sheet Asphalt	D. T.	2.16	By City	Dec. 9, 1912	Dec. 9, 1917

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1913—Continued

STREET	LOCATION	DESCRIPTION	KIND	Tracks	Price per sq.yd.	Assessment per front foot	Final Payment	Guarantee Expires
State Street	Conn. Boul. to Commerce St.	Covered	Macadam	No		By City	1908	
State Street	Front St. to City Hall	Repaved	Granite Block	D. T.	$3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Talcott Street	Market to Main St.	Paved	Granite Block	No	3.09	2.7184	Sept. 26, 1898	May 26, 1899
Talcott Street	Market to Main St.	Paved	Sheet Asphalt	No	2.75	2.7184	Sept. 26, 1898	Sept. 26, 1903
Temple Street	Market to Main St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	E. side & tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1913
Trumbull Street	Asylum to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27 1898	June 27, 1903
Union Place	Asylum to Church St.	Paved	Granite Block	No	3.37		1894	
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Windsor Avenue	Main to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sept. 11, 1899	Sept. 11, 1904
Windsor Avenue	Main to Canton St.	Tracks relaid	Sheet Asphalt	D. T.			1907	
Windsor Avenue	Canton to Capen St.	Tracks relaid	Sheet Asphalt	D. T.			1910	
Windsor Street	Main to the Park	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903

IMPROVED PAVEMENT IN HARTFORD, JANUARY 1, 1913

STREET	LOCATION	Tracks	Sheet Asphalt sq. yards	Granite Block sq. yards	Asphalt Block sq. yards	Brick sq. yards	Wood Block sq. yards	L'gth in Miles
Albany Avenue	Windsor Ave. to East St.	D. T.	4,520.00	......	......	......	......	0.21
Allyn Street	Trumbull St. to Union Pl.	No	6,041.00	......	......	......	......	0.29
Amer. & Cen. Rows	E. of Post Office	D. T.	......	1,885.00	......	......	......	0.03
Ann Street	Asylum St. to Allyn St.	No	1,170.26	......	......	......	......	0.06
Asylum Street	Spruce to Farmington Ave.	D. T.	......	4,658.72	......	......	......	0.16
Asylum Street	Spruce to Farmington Ave	D. T.	1,701.58	......	......	......	......	...
Asylum Street	Main to Spruce St	S. T. & D. T.	10,351.20	......	......	......	......	0.48
Atheneum Street	Prospect to Main St.	No	558.33	......	......	......	......	0.07
Broad Street	Bridge over Park River	No	451.55	......	......	......	......	0.02
Capitol Avenue	Lafayette to Park River	D. T.	15,075.34	......	......	......	......	0.60
Capitol Avenue	Park River to Laurel St.	D. T.	4,067.50	......	......	......	......	0.18
Capitol Avenue	Bridge over Park River	S. T.	......	......	......	......	442.60	0.03
Central Row	Main St. to Post Office	D. T.	2,000.00	......	......	......	......	0.05
Church Street	Main to Trumbull St.	No	1,399.24	......	......	......	......	0.11
Church Street	Union Pl. to Spruce St.	No	957.00	......	......	......	......	0.06
Farmington Avenue	Asylum to Prospect Ave.	D. T.	42,630.44	......	......	......	......	1.60
Ford Street	Pearl to Asylum St.	D. T.	2,658.90	......	......	......	......	0.10
Front Street	State to Sheldon St.	No	5,191.46	......	......	......	......	0.30
Gold Street	Main to Lewis St.	No	1,458.00	......	......	......	......	0.08
Grove Street	Main to Front St.	No	2,342.07	......	......	......	......	0.19
Hamilton Street	Bridge over Park River	No	369.00	......	......	......	......	0.02
Haynes Street	Pearl to Asylum St	No	......	......	718.42	......	......	0.05
High Street	Asylum to Main St.	No	6,341.00	......	......	......	......	0.42
Hopkins Street	Broad to Asylum St.	No	3,135.80	......	......	......	......	0.21
Kinsley Street	Market to Main St.	No	1,037.20	......	......	......	......	0.09
Laurel Street	Bridge over Park River	S. T.	......	......	......	411.0	......	0.02
Lewis Street	Pearl to Gold St.	No	1,085.00	......	......	......	......	0.10
Main Street	Wyllys to Windsor Ave.	D. T.	56,414.27	......	......	......	......	1.47
Main Street	State St. north	D. T.	......	......	......	......	500.00	0.06
Market Street	State to Morgan St.	S. T.	5,255.28	......	......	......	......	0.25
Morgan Street	Market to Main St.	S. T.	......	1,520.87	......	......	......	0.10

IMPROVED PAVEMENTS IN HARTFORD JANUARY 1, 1913—Continued

STREET	LOCATION	Tracks	Sheet Asphalt sq. yards	Granite Block sq. yards	Asphalt Block sq. yards	Brick sq. yards	Wood Block sq. yards	L'gth in Miles
Mulberry Street	Main to Wells St.	No	1,298.85	......	......	......	......	0.08
Park Street	Under R. R. Bridge	D. T.	......	560.00	......	......	......	0.03
Park Street	Bridge over Park River	D. T.	555.50	......	......	......	......	0.02
Pearl Street	Main to Ford St.	D. T.	8,188.50	......	......	......	......	0.32
Pleasant Street	Winthrop to Main St.	No	1,010.41	......	......	......	......	0.07
Pratt Street	Main to Trumbull St.	No	1,438.00	......	......	......	......	0.11
Prospect Street	Atheneum to Central Row	No	1,802.62	......	......	......	......	0.13
Sheldon Street	Main to Commerce St.	No	5,640.26	......	......	......	......	0.35
Spruce Street	Asylum to Church St.	No	2,286.00	......	......	......	......	0.12
State Street	City Hall to Main St.	D. T.	1,395.00	......	......	......	......	0.04
State Street	Front to Conn. Boulevard	D. T.	2,609.94	......	......	......	......	0.09
State Street	Front St. westerly	D. T.	343.10	......	......	......	......	...
State Street	Front St. to City Hall	D. T.	......	4,501.81	......	......	......	0.15
Talcott Street	Market to Main St.	No	......	950.42	......	......	......	0.09
Talcott Street	Market to Main St.	No	340.20	......	......	......	......	...
Temple Street	Market to Main St.	No	1,051.87	......	......	......	......	0.09
Trinity Street	Capitol Ave to Ford St.	S. T. & D. T.	6,947.80	......	......	......	......	0.27
Trumbull Street	Asylum to Main St	No	5,341.77	......	......	......	......	0.25
Trumbull Street	Pearl to Asylum St.	No	......	......	1,377.13	......	......	0.04
Union Place	Asylum to Church St.	No	......	3,267.00	......	......	......	0.12
Village Street	Windsor to Pleasant St.	No	1,927.30	......	......	......	......	0.11
Windsor Avenue	Main to Capen St.	D. T.	19,786.20	......	......	......	......	0.75
Windsor Street	Main St. to the Park	No	......	2,018.10	......	......	......	0.06
Windsor Street	The Park to Pleasant St.	No	2,318.12	......	......	......	......	0.11
Totals—			240,492.86	19,361.92	2,095.55	411.0	942.60	10.81

Total yardage all pavements— 263,303.93 sq. yds.
Total length in miles— Asphalt—9.87 miles
Granite block—0.74 miles. Asphalt block—0.09 miles.
Brick—0.02 miles. Wood block—0.09 miles.
Total length all pavements—10.81 miles.

TABLE SHOWING THE NUMBER OF SQUARE YARDS AND THE MILEAGE ACTUALLY COVERED OF THE DIFFERENT KINDS OF IMPROVED PAVEMENT LAID IN HARTFORD SINCE 1892. THIS TABLE INCLUDES ONLY NEW PAVEMENT LAID—NO REPAIR WORK

Year Laid	BRICK		BLOCK ASPHALT		GRANITE BLOCK		WOOD BLOCK		SHEET ASPHALT		Total Yardage Laid Each Year	Total Miles
	Yardage	Miles	Yardage	Miles	Yardage	Miles	Yardage	Miles	Yardage	Miles		
1892	1,427.55	0.11	....	....	....	....	....	....	....	....	1,427.55	0.11
1894	4,411.00	0.02	....	....	3,267.00	0.12	....	....	....	....	3,678.00	0.14
1895	442.60	0.03	7,755.50	0.32	....	....	....	....	....	....	8,198.10	0.35
1896	....	....	12,063.32	0.38	....	....	....	....	21,466.71	0.63	33,530.03	1.01
1897	....	....	6,694.04	0.36	....	....	....	....	45,074.48	1.51	51,768.52	1.87
1898	....	....	8,925.19	0.32	9,148.10	0.40	....	....	21,974.39	1.11	40,047.68	1.83
1899	....	....	....	....	560.00	0.03	....	....	63,784.40	3.10	64,344.40	3.13
1900	....	....	....	....	....	....	....	....	23,923.34	1.06	23,923.34	1.06
1903	....	....	....	....	....	....	600.00	0.06	8,188.50	0.32	8,788.50	0.38
1908	....	....	....	....	1,756.94	0.07	....	....	13,010.10	0.58	14,767.04	0.65
1909	....	....	....	....	4,629.87	0.12	....	....	7,805.60	0.28	12,435.47	0.40
1910	....	....	....	....	....	....	....	....	14,487.97	0.50	14,487.97	0.50
1911	....	....	....	....	....	....	442.60	0.03	10,963.41	0.50	11,406.01	0.53
1912	....	....	....	....	....	....	....	....	10,583.97	0.58	10,583.97	0.58
Totals	2,281.15	0.16	35,438.05	1.38	19,361.91	0.74	1,042.60	0.09	241,262.87	10.17	299,386.58	12.54

NOTE: The original paving on several streets has been removed and replaced by other pavements, and since this table contains both the original and the present pavement, the totals given here exceed the total yardage and miles in use at the present time as shown in another table.

THE FOLLOWING SUMS HAVE BEEN EXPENDED FOR REPAIRS ON PAVED STREETS TO JANUARY 1, 1913

Street.	Previous to 1902	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	Total.
Albany Avenue,				$7.19		$17.00	$198.06	$190.72	$200.41	$28.25	$110.67	$160.27	$912.58
Allyn Street,			$30.37		$17.67	124.89	109.75	163.69	451.30	156.37	352.54	460.50	1867.08
Amer. & Cent. Rows,		$435.23	360.00	973.98	50.02	412.44	2.98	413.24					2647.89
Ann Street,								6.40		5.64		8.14	20.18
Asylum Street,			358.92	1460.01	686.01	745.67	232.46	165.83	245.25	189.43	231.85		4315.43
Atheneum Street,								11.47	15.45	5.91	88.23	148.71	269.77
Broad Street Bridge,											17.52	20.18	37.70
Capitol Avenue,					36.10	483.43	1668.31	1303.49	1343.15	1727.88			6562.36
Church Street,			169.56	40.85	91.17	168.77	325.43	139.56	53.48	71.44	139.08	160.06	1359.40
Farmington Avenue,	$748.70		254.02	1351.28	879.91	1929.23	2810.71	909.28	3110.96	2180.38	3333.76	1928.94	19437.17
Ford Street,				236.32		414.40	1.12				95.55		747.39
Gold Street,											26.50	23.55	50.05
Grove Street,								39.24	56.20	58.31	23.43	109.49	286.67
Hamilton St. Bridge,											70.06		70.06
Haynes Street,			93.16							20.13		142.84	256.13
High Street,				98.56	28.37	418.45	515.60	309.02	1108.58	580.22	262.06	228.80	3549.76
Hopkins Street,				243.77		216.60	272.37	768.46	390.62	694.15	522.98	392.37	3501.32
Kinsley Street,			32.34						12.35			13.53	58.22
Lewis Street,											8.89	24.73	33.62
Main Street,	245.56	147.22	1809.57	1083.77	2414.36	3783.59	3783.59	3672.51	4168.23	2831.77	1899.11	958.50	29527.60
Market Street,	88.14	210.69	113.67	363.12	92.93	80.47	828.89	288.90	261.93	232.01	129.15	515.45	3205.35
Morgan Street,			57.47			35.59		8.80	7.35	8.56	74.03		191.80
Mulberry Street,					28.22		25.69	51.07	13.68		29.93	39.24	187.83
Park Street,	17.49		122.40		106.89			103.72					350.50
Pearl Street,	968.05		10.97	165.84			41.38			2.77		20.07	1209.08
Pleasant Street,				9.91						54.26	10.31		74.48
Pratt Street,	16.20		2.79		8.61	4.64	12.14	93.44	71.75	55.67	42.12	76.57	383.93
Prospect Street,		3.19		33.44	91.07				115.62	92.17	85.40	198.98	616.68
Spruce Street,		3.19							4.27	4.10	30.15	45.94	87.65
State Street,	1044.29	663.53	3006.65	41.78	1108.63	2771.30	5.96	74.78					8716.92
Talcott Street,						12.25						21.78	34.03
Temple Street,				2.90						7.90			10.80
Trinity Street,			125.97	305.71	69.27	766.23	387.14		1564.86	267.87	190.82	479.32	4362.84
Trumbull Street,			36.42	118.56	43.51	106.55	391.07	130.72	219.91	214.58	114.34	496.46	1872.12
Union Place,						131.91		35.16		6.66		16.35	190.08
Village Street,											7.83	59.40	67.23
Windsor Street,				11.59				35.15			15.54	351.90	414.18
Windsor Avenue,	7.89	21.96	44.84	134.77	94.74	518.42	764.31	563.29	1145.77	685.33	1115.76	1222.31	6319.39
Totals,	$3136.32	$1481.82	$6629.12	$6683.45	$5847.48	$13141.84	$12265.88	$13883.70	$13264.07	$10104.71	$9052.50	$8324.38	$103805.27

TABLE SHOWING THE COST PER YARD FOR REPAIRS TO SHEET ASPHALT PAVEMENT FOR EACH YEAR AFTER EXPIRATION OF GUARANTEE TO JANUARY 1, 1913

Street	Completed	Years guaranteed	6th year	7th year	8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	16th year	17th year
Albany Avenue,	1900	5	$.0038	$.0438	$.0422	.....	.....	.....	Partly resurfaced 1909			.....	.....	....
Allyn Street,	1899	5	.0029	.0207	.0181	$.0271	$.0747	$.0239	$.0583	$.0762	.....	.....	.....	.....
Ann Street,	1898	5	.....	.....	.....	.....	.0055	.....	.0048	None	$.0069	.....	.....	.....
Asylum Street,	1908	10	Guarantee expires 1918											
Atheneum Street,	1896	5	.....	...	.....	.....	.....	.....	.0205	.0277	.0106	$.1580	$.2663	.....
Capitol Avenue,	1900	5	.0338	.1165	.0910	.0940	.1207	.....	All resurfaced					
Church Street,	1897	5	.1211	.0292	.0651	.1206	.2325	.0997	Resurfaced 1909					
Farmington Ave.,	1899	5	.0410	.0899	.1309	.0424	.1449	.1016	.1553	Pavement extended 1910 and 1911				
Ford Street,	1908	10	Guarantee expires 1918											
Gold Street,	1898	5	.....	.....	.....	.....	.....	.....	....	.0181	.0161	.....	......	.....
Grove Street,	1898	5	.....	.....	.....	....	.0430	.0615	.0639	.0256	Pavement extended 1912			
High Street,	1899	5	.0045	.0660	.0813	.0487	.1748	.0915	Partly resurfaced 1911					
Hopkins Street,	1899	5	.....	.0691	.0889	.2451	.1246	.2214	.1667	.1251	.....	.....	.....	.....
Kinsley Street,	1898	5	.....	.....	.....	.....	.....	.0912	None	.0130	.....	.....	.....	.....
Lewis Street,	1900	5	.....	.....	.....	.....	.....	.0081	.0228	.....	.....	.....	.....	.....
Main Street,	1896	5	.0026	.0321	.0192	.0429	.0672	.0652	.1157	.0740	.0503	Partly resurfaced 1910		
Market Street,	1898	5	.0691	.0177	.0153	.1577	.0550	.0490	.0441	.....	Partly resurfaced 1909			
Mulberry Street,	1898	5	.....	.0217	.....	.0198	.0393	.0198	None	.0230	.0302	.....	.....	.....
Pearl Street,	1903	10	Guarantee expires 1913											
Pleasant Street,	1898	5	.0098	.....	.....	.....	.....	.....	.0537	.0102	None	.....	.....	....
Pratt Street,	1899	5	.0060	.0032	.0084	.0650	.0499	.0387	.0292	.0532	.....	.....	.....	.....
Prospect Street,	1898	5	.0186	.0505	.....	.....	.....	.0641	.0511	.0473	Partly resurfaced 1912			
Spruce Street,	1900	5	.....	.....	.....	.0019	.0018	.0131	.0201	.....	.....	.....	.....	.....
Talcott Street,	1898	5	.....	.....	.0360	.....	.....	.....	.....	None	.0481	.....	.....	.....
Temple Street,	1898	5	.0027	.....	.....	.....	.....	.....	.0075	None	None	.....	.....	.....
Trinity Street,	1897	5	.0181	.0440	.0100	.1103	.0557	.....	.0385	.0275	Partly resurfaced 1908			
Trumbull Street,	1898	5	.0222	.0081	.0199	.0732	.0245	.0412	.0402	.0214	.0929	.....	.....	.....
Village Street,	1899	5	.....	.....	.....	.....	.....	.....	.0061	.0308	.....	.....	.....	.....
Windsor Avenue,	1899	5	.0048	.0262	.0386	.0285	.0579	.0346	.0563	.0617	.....	.....	.....	.....
Windsor Street,	1898	5	.0050	.....	.....	.....	.0151	.....	.....	.0067	.1019	.....	.....	.....

im Box
TE
25

1227

SEVENTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONNECTICUT

FOR THE YEAR ENDING MARCH 31, 1914

SEVENTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONNECTICUT

FOR THE YEAR ENDING MARCH 31, 1914

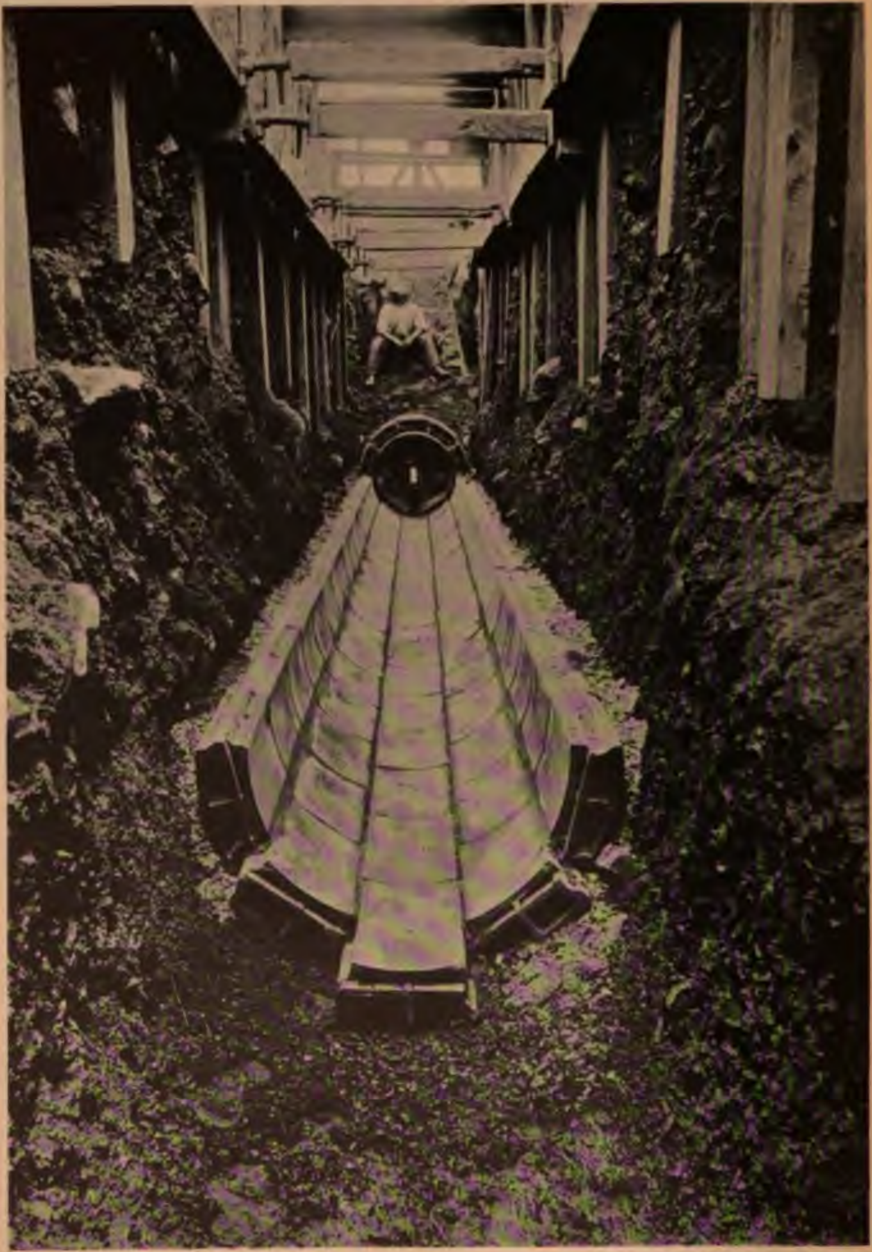
The Mugford Ptg. & Eng. Co.
Hartford

HARVARD UNIVERSITY
The Library of the Schools
of Landscape Architecture and City Planning

ORGANIZATION

ROSCOE N. CLARK, City Engineer.
ROBERT J. ROSS, Assistant City Engineer.
HARRY G. WHITMAN, Chemist.
WILLARD S. BREWER, Division Engineer.
HERBERT G. CLARK, Division Engineer.
JOHN P. MURPHY, Assistant Engineer.
H. IRVING SKILTON, Assistant Engineer.
ALDEN WELLS, Assistant Engineer.

JOHN F. DORAN.
E. SELDEN GEER, JR.
F. PERRY CLOSE,
FLORENCE L. CHAPIN.
GEORGE ANGELO.
PAUL P. KIMBALL.
GEORGE S. FRANCIS.
THOMAS ROWLAND.
HAROLD R. WHITE.
CLEMENT C. BRODERICK.
AARON FIEN.
JOSEPH CALLAGHAN.
EDWARD L. DONAGHUE.



30 INCH TILE BLOCK SEWER BUILT IN TERRY ROAD

REPORT

HARTFORD, CONN., AUGUST 17, 1914.

To his Honor the Mayor, and to the Honorable Court of Common Council of the City of Hartford, Connecticut.

Gentlemen:—

I have the honor to submit the following report of the work of the Department of Engineering for the year ending March 31, 1914.

The work of the Department, as explained in previous reports, is assigned to various divisions according to its character and classification, and will be so considered herein.

SEWER DIVISION.

Tables appended to this report give a list of all sewers constructed from April 1, 1913, to April 1, 1914, together with data concerning their construction and cost.

There are no special features connected with them with the exception of the Terry Road Sewer. In the construction of this sewer the 36″ and 30″ sizes amounting to 1833 lineal feet were built of vitrified clay segment blocks, this being the first instance of their use in this city. These blocks are of cellular construction, each being 2 feet long and for the sizes built were 5 inches thick. For the 30 inch size, ten were used to make the entire circle, and twelve for the 36 inch size. The method of laying is similar to that of a single ring brick sewer, the invert being bedded in crushed stone screenings. This sewer was built through rock, hardpan, and a mixture of clay and gravel, and the type of construction proved very satisfactory.

The construction of a conduit to complete the covering in of Gully Brook is still held in abeyance on account of appeals from the assessment.

New work contemplated the coming season includes local sewers in Monroe, Sterling and Barker Streets, Hillside Avenue and a portion of the Maple Avenue Sewer System, and the extension of the Homestead Avenue Interceptor from Adams Street to Uphill Street. That portion of the Maple Avenue System which it is expected to complete this year includes the following streets: South Street from Franklin Avenue to Maple Avenue; Campfield Avenue from South to Preston Streets; Preston Street from Campfield to Maple Avenues; Maple Avenue southerly from Freeman Street; Fairfield Avenue; Freeman, Torwood, Griswold and Salem Streets. The portion lying west of Maple Avenue and north of Freeman Street, and also Bushnell and Adelaide Streets will be begun during the present season and completed next year.

The East Side Sewage Pumping Station was completed during the year and has been in successful operation during a portion of the month of March while the Connecticut River was above elevation 15.0 city datum.

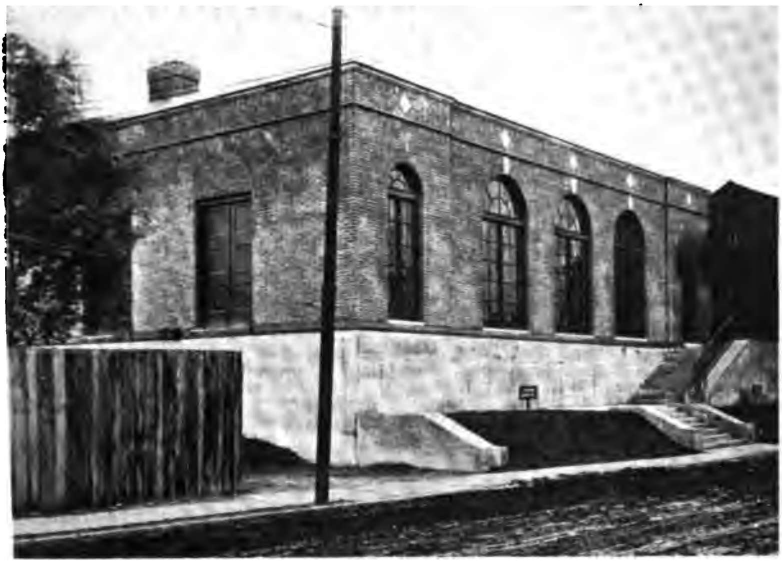
Accompanying this report are photographs of the exterior of the station and the motor room, also diagrammatic plan and cross section.

There has also been made a topographical survey of a portion of the South Meadows lying east of the Valley Branch Railroad, and a system of ditches laid out to drain the low places.

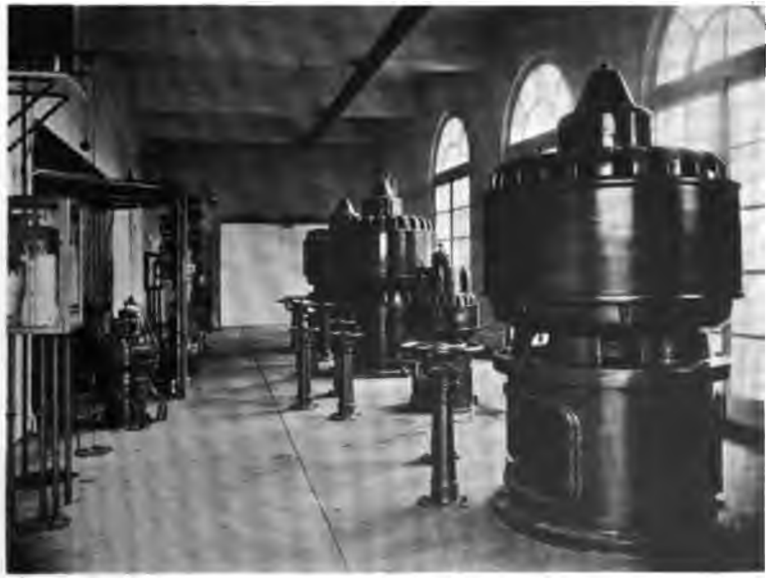
PAVING, TRACK WORK AND CURB CORNERS—IMPROVED PAVEMENT

Under this head are included both the new paving work and the resurfacing. The usual half-mile of improved pavement was laid as allowed by the Charter without petition of the property owners, and in addition Marsh Court was paved with asphalt, and portions of Spruce and Church Streets with granite block, on petition of the abutting property owners.

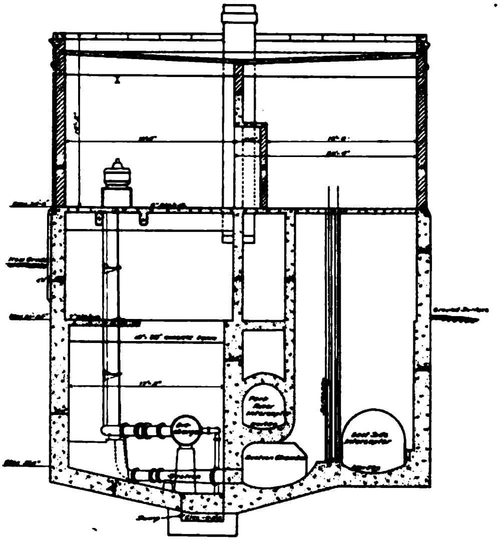
At the session of the last Legislature, an amendment to the City's Charter was passed giving the necessary authority for the laying of one mile of pavement without petition. This was a step in the right direction but the limit should be still changed to two miles at least, since Hartford is far behind other



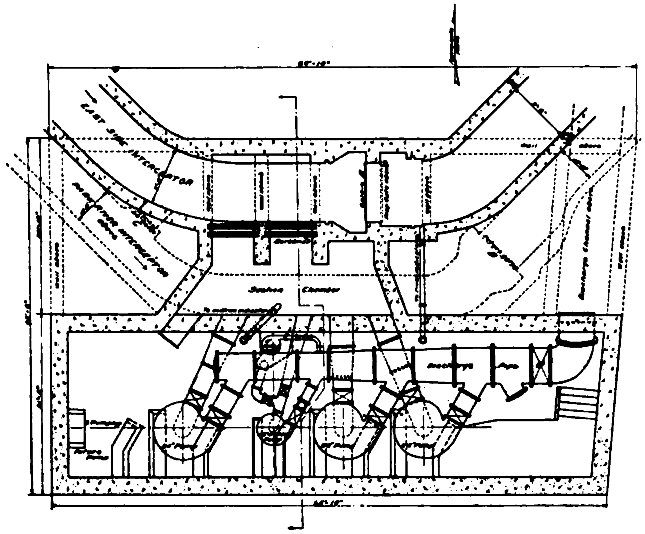
EAST SIDE SEWAGE PUMPING STATION
Completed 1913



EAST SIDE SEWAGE PUMPING STATION
Motor Room



EAST SIDE PUMPING STATION
CROSS SECTION



EAST SIDE PUMPING STATION
PLAN SHOWING
ARRANGEMENT OF SEWERS AND PUMPS

progressive cities in mileage of improved pavement. In my last annual report I gave a list of the streets which for reasons of health and cleanliness as well as economy should be paved at once. The avenues leading from the city such as Windsor, Albany and Wethersfield Avenues, and Park Street, have very heavy traffic on them which calls for improved pavement. Of the above, Albany Avenue from East Street to Magnolia Street is to be paved this coming season.

NEW PAVEMENT

Sheet asphalt was laid during 1913 on the following streets:

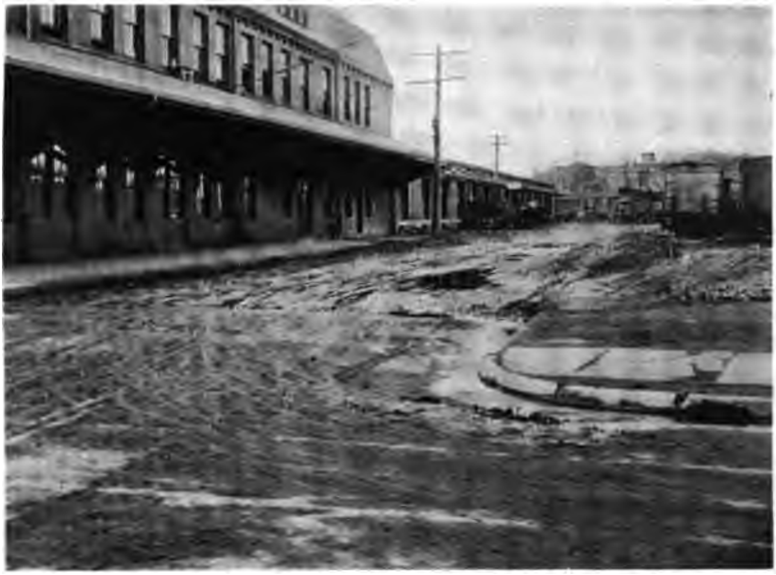
Front St. from State St. to Morgan St.
Morgan St. from Front St. to Market St.
Marsh Court from Market St. to Village St.
Pleasant St. from Windsor St. to the Railroad.

Since there is very heavy traffic on Front Street and also because of a grade of over 5 per cent. the intersection of Front and Morgan Streets was paved with granite block instead of sheet asphalt.

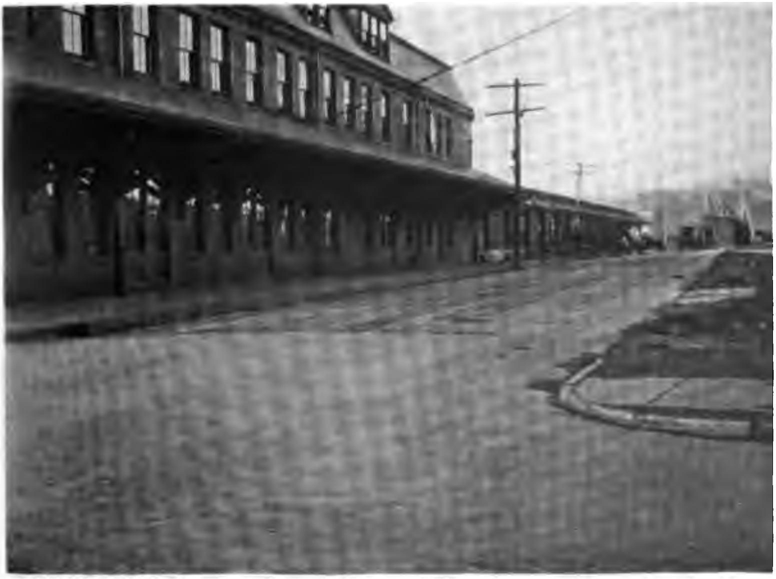
On petition of the abutting property owners, granite block pavement was laid on Spruce Street from Church Street north about 500 feet, and on Church Street from Spruce Street west about 50 feet. The improvement on these streets is especially noticeable since there is an immense volume of traffic about the Spruce Street freight yards, and formerly in the spring the streets were almost impassable because of mud, and in summer hub-deep in pulverized dust. A concrete gutter three feet wide instead of the customary curb was constructed on the west curb line of Spruce Street adjacent to the freight station, allowing the backing of trucks to the station doors and giving a pleasing appearance as well. In connection with this work the space between the gutter and the building was also paved with granite block, the expense being borne by the Central New England Railroad.

Total yardage of improved pavement laid in 1913:—

Granite Block	2108.7	sq. yds.
Sheet Asphalt	9589.89	" "
Total	11698.59	" "



SPRUCE STREET NORTH FROM CHURCH
Showing Street Before Paving



SPRUCE STREET NORTH FROM CHURCH
Showing New Granite Block Pavement

of this amount the Connecticut Company paid for the laying of 734.65 square yards of asphalt and 15.73 square yards of granite block. The total cost for improved paving during 1913 was $29,854.54. Hartford now has 11.48 miles of improved paving covering a total area of 275,002.52 square yards.

Paving tables containing valuable information of a miscellaneous nature are appended to this report.

RESURFACING

Farmington Avenue was wholly resurfaced from curb to curb from Asylum Street to Sigourney Street. From Sigourney Street to Woodland Street both sides were resurfaced, the space between the rails having been repaved in 1909. In connection with this work the Connecticut Company installed new tracks from Asylum Street to Sigourney Street. The whole of Farmington Avenue from Asylum Street to Prospect Avenue is now in splendid condition and is considered by many to be one of the finest roadways of its kind in this country.

Church Street was resurfaced from Union Place to Spruce Street, as was also the asphalt strip on the south side of Asylum Street between Farmington Avenue and Hopkins Street.

The resurfacing covered 13,183.80 square yards at a cost to the city of $18,641.18. These figures do not include the yardage laid by the Connecticut Company, about 5000 square yards.

PAVING REPAIRS

The improved pavements were repaired last season in the customary manner. For a short time after the general patching work in the spring there was not a hole to be found in any paved street in the city. This ideal condition was short lived, however, since for one reason or another various corporations and individuals soon found it necessary to open the streets for the purpose of installing pipes, wires, etc.

As stated in my last report, this opening of the streets can never be entirely done away with, and while occasionally it happens that with proper foresight on the part of those responsible, the cutting of the pavement might have been avoided, the openings for the most part are occasioned by needed improvements in the service pipes, wires, etc. While every effort should be made to discourage unnecessary openings in the street, it would be short-sightedness and poor policy to refuse to allow openings to be made when for instance an old building is being removed to make room for a fine, modern structure which requires larger gas and water pipes and better service in general.

Much of the cutting into the pavements the past season was for the purpose of placing the unsightly overhead wires underground, and when this particular work is completed, a material reduction in the extent of the openings should be noticed.

In making repairs the past season, 2,750 square yards of sheet asphalt were laid. In addition to this, repairs were made in a number of places in granite block streets, and a small amount of concrete foundation was renewed.

During the past season $7251.51 was expended for repairs on improved pavement streets. This amount proportioned over the 263,303.93 square yards of such pavements which existed in the city at the beginning of the last fiscal year gives 2.7 cents as the average cost per square yard for repairs for all improved pavements.

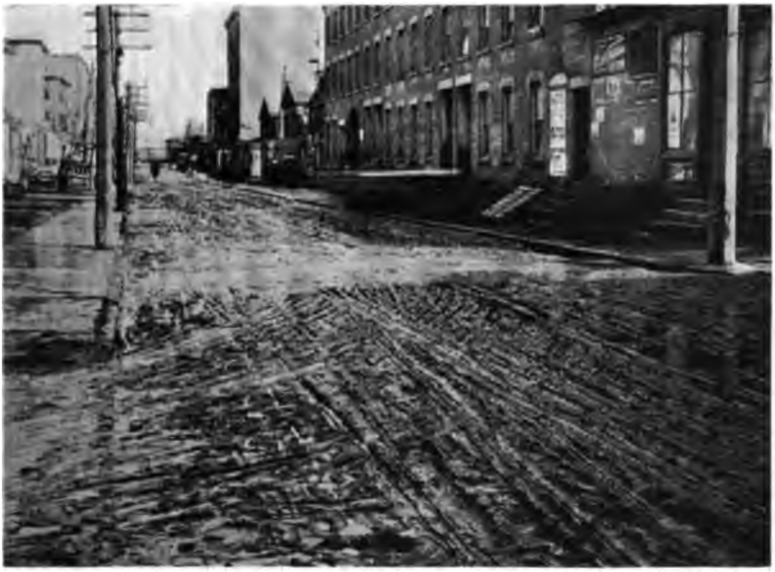
PAVING PROPOSED FOR 1914

As mentioned under the head of Improved Pavements the city now has the authority to lay one mile of improved pavement without the petition of the property owners interested. During 1914 the streets composing the mile will be:

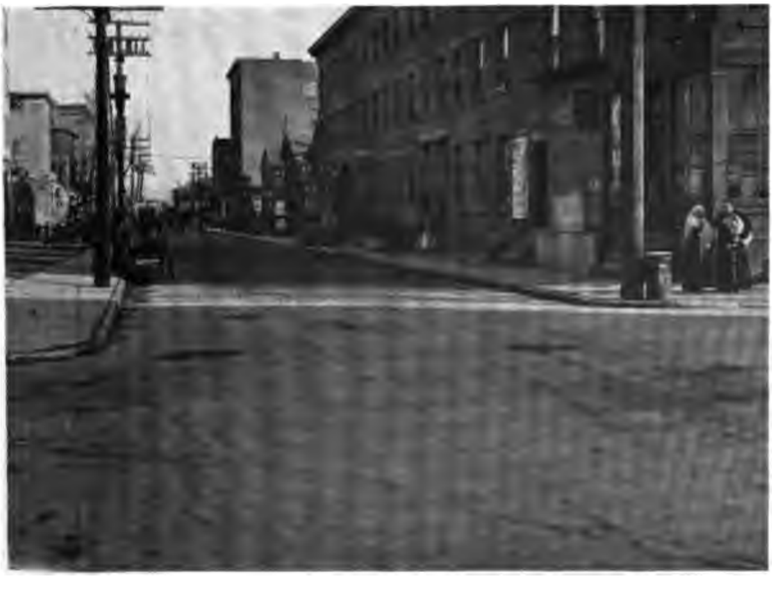
Temple St. from Market to Front St.
Talcott St. from Market to Front St.
Market St. from Morgan to Pleasant St.
Windsor St. from Pleasant to Avon St.
Albany Ave. from East to Magnolia St.

All of the above will be paved with sheet asphalt.

Main Street will be resurfaced on the east side from Charter Oak Avenue to Wyllys Street; also on the east and south sides of the South Green. The intersection of Windsor Avenue and Albany Avenue will be resurfaced in connection with the



PLEASANT STREET EAST FROM CORNER VILLAGE STREET
Showing Street Before Paving



PLEASANT STREET EAST FROM CORNER VILLAGE STREET
Showing New Sheet Asphalt Pavement

installation of new special track work by the Connecticut Company. Trumbull Street will be resurfaced from Asylum Street to Church Street, and Trinity Street for its entire length on the west side of the tracks

CORNERS CUT BACK TO LONGER RADII

In connection with the new paving on Front Street, larger curb radii were installed on the north corner at Ferry Street; both corners at Temple Street; all four corners at Talcott Street, and at the southwest corner of Morgan Street.

In connection with the resurfacing of Farmington Avenue, both corners of Broad Street were cut back, a strip of land neccesary for the improvement at the west corner being given by the Rossia Insurance Company. This company also contributed one-third of the cost of the physical changes at that corner.

The necessary land was given by the respective property owners and the curb corners cut back at the following locations: Garden Street at the west corner of Asylum Street; Hoadley Place at the south corner of Foot Guard Place; Whitmore Street at the north corner of Maple Avenue; Laurel Street at the west corner of Park Street; and at the southwest corner of New Britain Avenue and Broad Streets. Numerous corners will be cut back during the season of 1914, chief among these being the corners of the streets intersecting with Albany Avenue where the new asphalt paving is to be installed.

TRACK WORK

Track profiles were furnished the Connecticut Company and the following work installed under the inspection of this department: Farmington Avenue new double tracks from Asylum Street to Sigourney Street. Wethersfield Avenue old tracks resurfaced and placed on ten foot centers from Elliott Street to Eaton Street.

Franklin Avenue east track resurfaced from South Street to the City Line. Morgan Street tracks resurfaced from Market Street to Charles Street. New special work was installed at the intersection of Park and Laurel Streets.

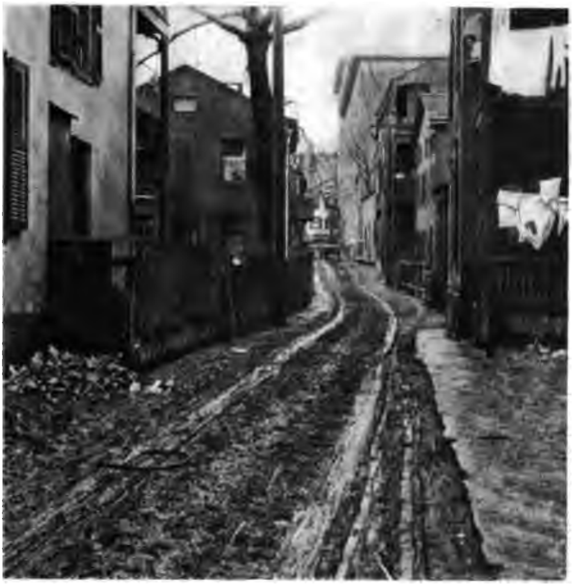
TRACK WORK PROPOSED FOR 1914

Albany Avenue, new tracks from East Street to Vine Street. Main Street, new tracks and special work at the intersection of Windsor Avenue and Albany Avenue.

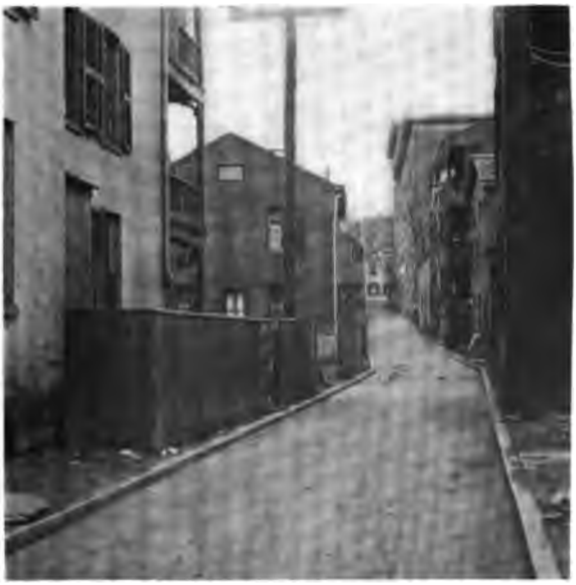
SURVEY AND STREET DIVISION

The work assigned to the survey and street division is of a miscellaneous nature. When the necessity for the layout of a new street arises, this department is obliged to make a survey, take levels, and work up a layout of lines and grade. This is not always a simple task and is likely to involve many hours of work and study both in the field and in the office. As the position, grade, etc., of a street may vitally affect the future development of the surrounding land, it often becomes necessary to consider an extensive territory in laying out a new street in order that it may be in the proper relation to the adjacent streets which are likely to be developed in the future. When these new streets are accepted by the City their position is known absolutely, they are referenced to other streets or adjacent buildings, and the lines as accepted by the City can be run out and marked upon the ground whenever it becomes necessary. Many of these accepted streets remain undeveloped for years, and it is a fact that tons of hay are cut and vegetables are grown on many acres of streets in our city every year.

When the property owners or the city desire to grade one of these streets, the survey and street division is again called upon to set stakes for this purpose. For each house built, stakes are furnished defining the building and veranda lines. The laying of sidewalks usually follows the building operations and again stakes are called for. As the street builds up it becomes necessary to install catch basins and for this purpose stakes are again furnished marking their location and giving the exact line and grade so that they will coincide with the curb when it is laid. Before the street is macadamized, curb stones must be laid and once more stakes are required. With miles of streets in the city in all stages of development, and since much of the work is called for to accommodate the individual



MARSH COURT WEST FROM MARKET STREET
Before Paving



MARSH COURT WEST FROM MARKET STREET
Showing New Sheet Asphalt Pavement

property owner at times to suit his own personal requirements, this work is a continuous operation.

To define the streets and thus facilitate the work of furnishing lines when called for, merestones or bounds are set at the corners, angle points, and at the beginning and ends of curves. The bounds now being used are set five feet deep in a concrete foundation, are square on the top and bottom, and the sides taper toward the top to better resist frost action. These bounds are made of concrete and reinforced with steel rods. A heavy, sherardized casting is built into the top, and in order to readily distinguish them from private bounds this casing is marked with the letters H. C. M. S. (Hartford City Mere Stone), one letter being in each corner. A copper plug is built into the concrete in the center of the bound and after the latter is carefully set, the exact line is marked on this copper plug by a small point. These bounds cost about two dollars each to make. They are used again and again whenever the street lines are required, and the time saved by having them ever ready pays for them many times over. They are in constant use by private engineers as well as the various city departments. These stones are made and set by the survey and street division usually in the fall season. The past season one hundred and sixty stones were set at locations as needed.

During the past season layouts were prepared for the acceptance of the following streets:

Andover, Branford, Burlington, Blue Ridge, Coventry, Chatham, Colebrook, Cornwall, Dorothy, Granby, Grandview, Hebron, Holcomb, Streets, Hoadley Place, Lyme, Manchester, Monroe, Orchard, Palm, Plainfield, Plymouth, Pomfret, Sharon, Thomaston Streets, Tower Avenue, Uphill Street, Vineland Terrace and Woodstock Street.

Surveys were made and layouts prepared for changes in street, building or veranda lines on Capen, Church, Edgewood, Freeman, Hartland, Jefferson, Jewell, Manchester, Main, Mansfield, Market, North Beacon, Oxford and Standish Streets and Warrenton Avenue.

New street lines were established on several street corners to allow for a longer curb radius, as follows: Albany Avenue at

Vine Street; Maple Avenue at Whitmore Street; Farmington Avenue at Broad Street.

Sidewalks and curb lines were established on Blue Hills Avenue, Enfield Street, Girard Avenue, Harper, Julius and Loomis Streets, Love Lane, Newbury Street, Newington Avenue, Plainfield Street, Prospect Avenue, Temple Street, Vine Street, Waverly Street and West Hartford Boulevard.

New curb corner radii were established on Hoadley Place at southeast corner of Foot Guard Place; Albany Avenue at northwest corner of Vine Street; Broad Street at southwest corner of Farmington Avenue, and Maple Avenue at northeast corner of Whitmore Street.

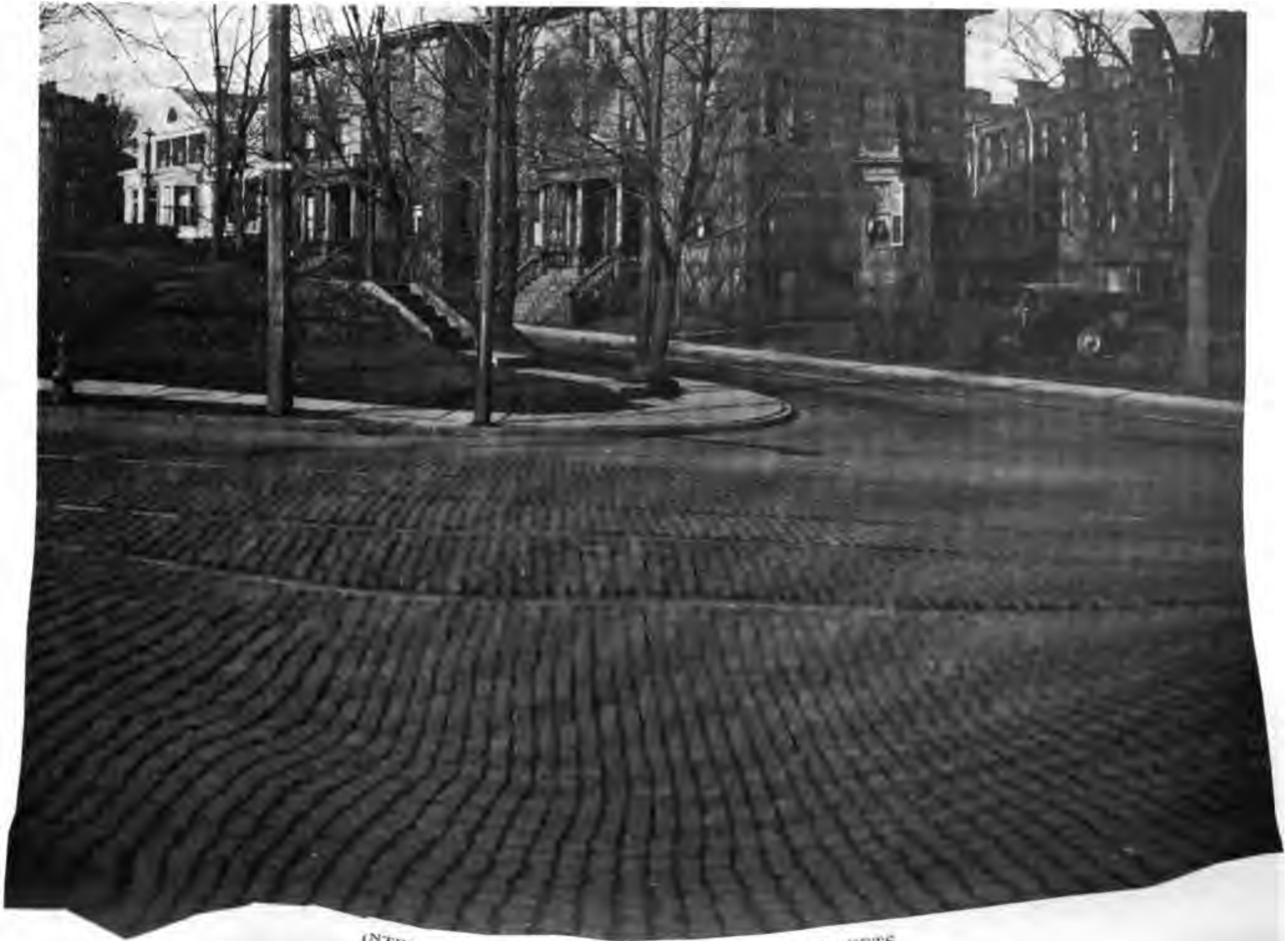
Layouts were prepared for the establishment of new grades on Albany, Prospect and Fairfield Avenues, Talcott, Temple and Windsor Streets.

Miscellaneous surveys were made for the Park and Cemetery Department and for the Commission on the City Plan.

Grade or line was set for street construction, curbs, paving, grading, etc. Street, building and veranda lines were staked for numerous property owners on application.

PROPERTY MAPS

To meet the many calls regarding ownership, size, shape, boundaries, etc. of parcels of real estate, and to facilitate the making out of assessments for public work, this office keeps a set of reference maps constantly up to date showing the ownership of every piece of property in the city. For this purpose the city is divided into one hundred and thirty-three arbitrary sections and each of these reference maps covers one of these divisions. This work began on a small scale in 1898 and 1899 and has been so developed that it is now a very comprehensive real estate record index. As each transfer is recorded at the Town Clerk's Office an abstract showing grantors, grantees, dates, and a description of the property is made by an employee of this department. With these abstracts in hand the property can be located on our maps and the necessary changes made. On these reference maps each piece of property is assigned a serial number. This number is noted on the abstract which



INTERSECTION OF GARDEN AND ASYLUM STREETS
Showing New Large Radius Curb Corner

is later typed and filed under the property number. Two thousand six hundred and twenty such transfers were made during the past season.

Considerable work was also accomplished during the past year in tracing back old deeds of properties which have not been transferred since the system was started, so that now this department has a deed description of nearly every piece of real estate in the city.

Each October copies of these maps are furnished the Board of Assessors for their use. A comparison for this set with the books of the Assessors gives a valuable check on all property owners. These reference maps also show streets, building and veranda lines with their date of acceptance by the Court of Common Council; the width of all streets; all buildings that have a taxable valuation; and the house numbers issued by this Department. All deed frontages are given as well as any frontages which have been determined by this Department from surveys. All this information collected on one set of maps makes them probably more useful than any other single set of drawings in this office. They are in constant use by this and other city departments and by the public. In connection with the reference maps the assessment for street sprinkling is prepared each year for the Board of Street Commissioners.

Beginning with forty-four miles of sprinkled streets in 1899 and ending in 1913 with ninety-two miles, shows that the area sprinkled and therefor the work of preparing this assessment has constantly increased, that for 1913 being an increase of 10 per cent over the previous year. This last assessment consisted of five hundred and eighty-three typewritten pages containing the names of about ten thousand property owners with their addresses, frontages, and the amount assessed against each. For this and other assessments this office helps the Collector and other departments in securing addresses of property owners.

In connection with the real estate transfers, twelve maps showing new sub-divisions were filed with the Town Clerk. These were transferred by employees of this Department to the map book in the Halls of Records. Several maps were also transferred from deeds to deed books.

BUILDING AND VERANDA LINES

The work of defining building and veranda lines in connection with the erection of buildings was carried on in co-operation with the Building Inspector. Six hundred and seventy-five new buildings required the lines defined on the ground. A record of these buildings is kept and each summer all new buildings are located and measured and then plotted on our reference maps.

The Department has also had numerous calls to mark the street lines from various individuals for the purpose of defining the lines for fences or hedges along their property, and also from private engineers in connection with their surveys.

TESTING LABORATORY

In the year 1913 the usual testing of materials was carried on as in the past. A large number of tests were made on asphalt, oils, coal, cement, etc. as were found necessary. Inspection at the plant of all the sheet asphalt which was laid during the year was also made. This inspection is of the greatest importance to the success of the asphalt pavements in after years, as their durability depends largely upon the correct proportioning of the ingredients and the skillful handling of the mixture.

All road oils used by the Street Department in oiling the city streets are examined in this laboratory.

The benefit resulting from the oiling of a macadam road is twofold, first—the prevention of dust, and second—the increase in durability owing to the cementing effect of the oil on the ingredients of which the wearing surface of the road is composed. These oils come from many different locations and the characteristics vary considerably in each case.

Road oils are now prepared with certain percentages of asphaltic content (or residual asphalt which is obtained by heating under 500° F.) and are designated as 40-50-60 per cent. etc. asphalt as the case may be. As the asphaltic content increases, the oil usually becomes of a more viscous nature and so the binding qualities are somewhat enhanced. The 40 and 50 per cent. oils can ordinarily be used in the oil distributors without heating, while those of higher asphaltic content often require heating before being applied to the road surface.

The order of examination of the oils is usually as follows: The specific gravity, flash point, volatilization test, bitumen soluble in carbon di-sulphide, bitumen insoluble in 86°. B naptha, fixed carbon, and the asphaltic content of 100 penetration which is obtained by keeping the oil at a temperature under 500° F. until the proper point is reached. The above tests are somewhat of a technical nature and will not be given in detail in this report.

During the past year considerable equipment has been added to the laboratory which makes possible many tests that could not be accomplished hitherto. There are still many things needed but it seems advisable to wait until a suitable laboratory is provided.

DRAIN-LAYERS

During the year forty-six drainlayers licenses were issued to parties who had qualified themselves in the laying of private drains under the rules and regulations of the Board of Street Commissioners.

A total of five hundred and sixty-five permits to lay or repair sewers, drains or connections to the main sewer were issued to these license drainlayers. Of this number three hundred and sixty-one were for new house connections, eighty-six were issued for the repairing or relaying of house drains. The different companies and corporations who are putting their wires in underground conduits took out forty-six permits for draining their various manholes constructed along their duct lines. The Connecticut Company took out twelve permits for track drains and catch basins. In all sixty permits were taken out by the Board of Water Commissioners, thirty-eight being for draining hydrants and twenty-two for blow-offs.

Since this ordinance went into effect in May 1903 there have been a total of 5,502 permits taken out for work in connection with drains for various purposes.

The system of inspecting all connections made with the main sewer, and all repair work made on drains, produces more skillful workmanship, consequently a better quality of work, thus insuring the property owner of a more satisfactory drain and saving the city more or less trouble in the nature of stoppage and obstructions in the main sewers due to faulty or improper connections.

Besides being inspected, an accurate sketch of the connection is made by the inspector giving the depth of the connection below the street or curb level, a definite location at the main sewer or curb line and also at the house. This facilitates the work of repairing the drain by having its exact location known should it ever become necessary to dig it up.

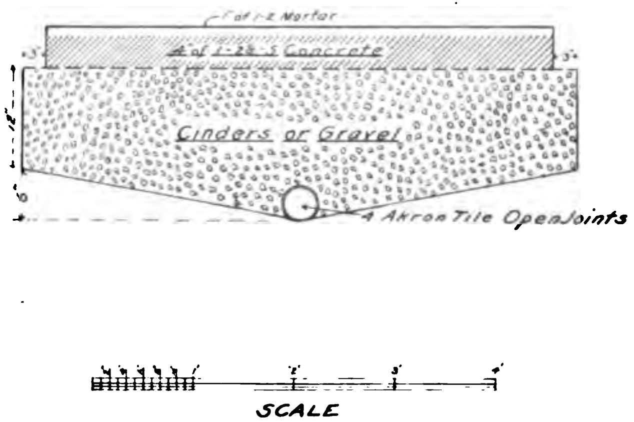
CONCRETE CURBS AND SIDEWALKS

Concrete curbs and sidewalks are proving very popular in Hartford, and during the past season more than half of the new curb and sidewalk work was of cement construction. As regards durability, I doubt if concrete curbs and walks have any advantage over granite and flagstone. The fact cannot be denied, however, that concrete curbs and walks remain in place very much better than do granite and flagstones when each is laid in accordance with the common practice. Concrete curbs are better adapted to curved roadways than are those of granite, as they can be built to any desired radius at about the same cost as for straight work, while granite curbs are considerably more expensive when cut to a curve. A good example of concrete curb built on a curved street may be seen on Love Lane from Westland Street to Harper Street which was installed during the past season.

The increased depth of the concrete curbs over the granite commonly used, and the smooth tapering sides makes this type better adapted to resist frost action. This curb has been down in some streets in the city for several years, but as yet there has been no occasion to re-set any of it on account of its having been thrown out of line and grade by frost action. The frost action in the clay soil common to Hartford is greater than most other cities have to contend with and in consequence we are obliged to take precautions against this almost irresistible force by increasing the depth of our curbs and by placing special foundations and under-drains under our walks, etc. While we have found it necessary to build our curbs three feet deep, many cities, where the frost action is slight although with winters as severe as ours, are getting satisfactory results from curbs 20 and even 16 inches in depth. In all of the curb built in Hartford to date, a steel corner bar has been used. This steel is necessary on street corners where the curb is subjected to hard usage and on busy down town streets, but I believe it might be dispensed with on many of the outlying residential streets where the traffic is light. This steel adds about $0.20 per lineal foot to the cost of the curb which is more than 20 per cent. of the total cost. If the steel is omitted the section of the curb should be modified slightly to better protect the edge. This modification would consist in giving the front face of the curb more batter in order to set the corner back from a vertical plane to escape the sides of wheels drawing up against the curb. As a further protection against chipping off the edge it should be built more rounding than as at present.

In many cities where a sandy or gravel soil prevails, concrete walks are laid directly upon the natural soil and no special foundation is provided. The places in Hartford where this practice would be safe are very few. In a few instances where conditions were favorable, walks have been built directly upon the ground with more or less satisfactory results.

The depth and character of the foundation for concrete walks is more or less an arbitrary matter to be governed by local conditions. A record has been kept of the depth of foundation, etc., of many of these walks laid during the past few years and as a result of a study of the same, and after careful inspection of the conditions of the walks from time to time, I feel that the section illustrated is safe in most locations in Hartford, and at the same time is not excessive in cost. Where trees are numerous and close to the walk the open tile drain would be of little use after a few years, as it would become clogged with roots, but where the trees are not likely to bother, the tile is a good investment. In a porous sub-soil the tile will be superfluous, but unfortunately such a condition is seldom encountered in this city. The clay which generally forms the sub-soil in this city is practically impervious to water, and if a trench is dug in it and filled with cinders or other porous



Cross Section
Showing Typical Details
For Foundation
Under Concrete Walk

Department of Engineering
Hartford Conn.
Day Book No 03552 1914

material the water collects there and cannot drain off unless such means as the tile drain are provided. For all of this new curb and walk work, as well as for all re-setting of the existing stones, this Department gives line and grade. During the open season upward of 100 men are constantly employed by the six or eight contractors who are engaged in this business. The work is done by numerous small gangs working simultaneously in all sections of the city and it is no small task to keep each party supplied with the necessary line and grade stakes and to properly superintend the work.

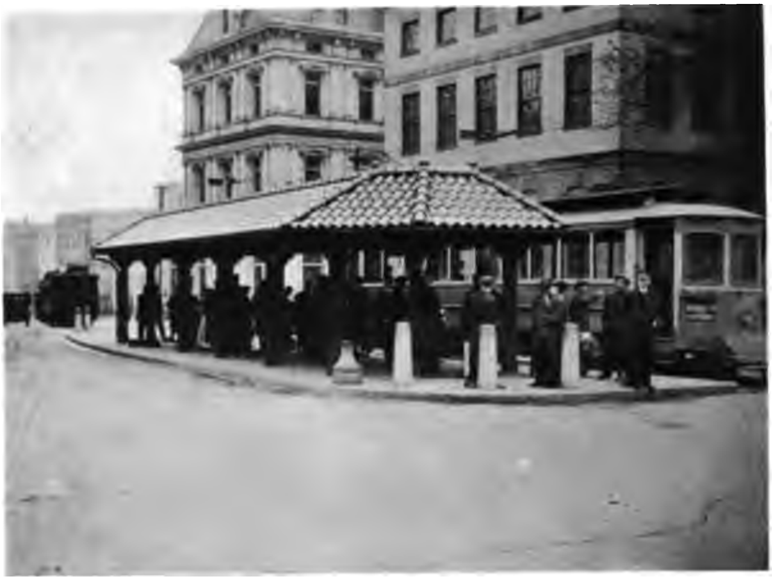
From the standpoints of economy and efficiency I believe that all setting and re-setting of curbs and walks should be done by the city either with its own employees or by contract. In this way the work on the entire streets, or even on groups of streets could be taken care of at one operation with the consequent saving to the property owner due to concentration of effort, and the more favorable prices for the relatively large amount of work undertaken. I also believe that while perhaps the first cost of curb setting should be borne by the property owner, the subsequent maintenance cost should be paid by the city at large.

UNDERGROUND CONDUITS

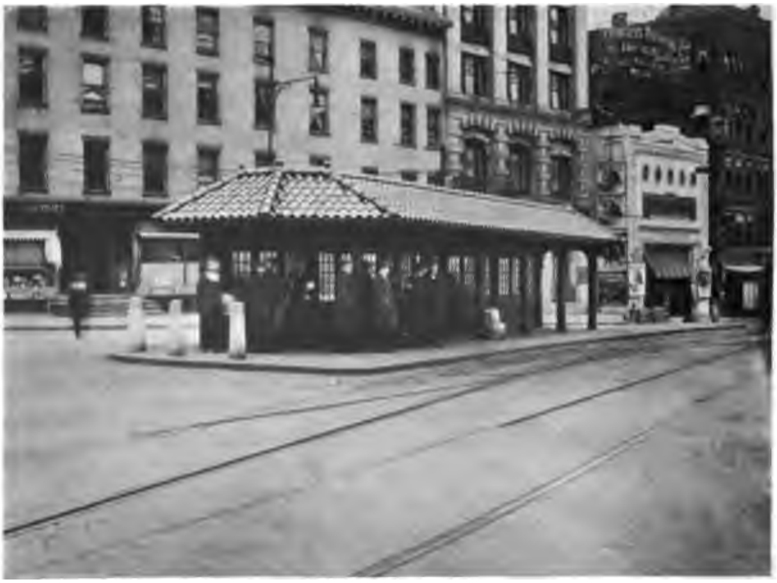
Satisfactory progress has been made the past season in the work of placing the overhead wires of the various corporations underground. Assigning locations for these underground structures in addition to inspecting the various operations, involves an enormous amount of work, since the size and position of all other pipes, conduits, sewers, etc., in the street must first be obtained and a map made showing each in its proper position in the street. In the case of comparatively new streets the maps of the various public service corporations generally show the positions of their structures with reasonable accuracy and it becomes then a simple matter to compile a general map showing all underground structures. In the older sections of the city, however, in which most of this underground work is going on at the present time, reliable information as to the position of the existing pipes, etc. is in many cases difficult to obtain. In such streets it may be known for instance that a sewer exists which was built years before it was the practice to keep accurate records such as we make today, and consequently no map exists showing its position. The same is true in regard to water and gas pipes. In such cases we are often able to get information on these hidden pipes from records taken in recent years whenever the street has been dug up to repair a drain or to lay a new connection to the sewer, to renew the water service, etc. By piecing this information together, so to speak, and studying the situation after indicating the position on the map of all structures whose positions are definitely known, we are generally able to surmise the course of these doubtful pipes and to assign a new location with reasonable assurance that it can be followed. For some new underground work which has to be laid upon a grade such that it will drain itself, it is necessary not only to know the horizontal location of pipes but their depths as well.

The corporations are given to understand that before assigning new locations this Department has taken reasonable steps to ascertain the position of all other underground structures in the streeet, and while it is believed that the layout as given is available, the Department does not guarantee it and will assume no responsibility for the cause or effect of encountering obstructions which makes it impossible or impracticable to follow the lines as given. The corporations are not permitted to deviate from the layouts as given without approval from this Department. In some cases the corporations are permitted to dig test pits at critical points before starting on the main work in order to be perfectly sure of the positions of doubtful pipes. When these pits have been carried to the necessary depth, and pipes etc. uncovered, they are carefully located by employees of this Department, and their position, size, etc. indicated upon the map.

In assigning a location in any street whether conditions are crowded or where there is ample room it is not necessarily a case of "first come, first served," for the future requirement and rights of other parties who are using or who are likely to use the street are carefully considered in assigning locations.



TROLLEY WAITING STATION, STATE STREET



TROLLEY WAITING STATION, STATE STREET
Showing Removable Weather Screens

We have on file at the present time one hundred of these underground maps and additional ones are being added as required.

GRADE CROSSING ELIMINATION

Unfortunately not much progress has been made toward the elimination of railway grade crossings during the year.

Petitions presented to the Public Utilities Commission by order of your Honorable Court, and accompanied by carefully prepared plans, have, after preliminary hearings thereon, been temporarily tabled, upon the railroad company's representation pleading financial inability to undertake this work at this time. The work of elimination contemplated in these petitions comprises the very dangerous crossings at Windsor and Avon Streets and at Sigourney and Flower Streets.

TROLLEY WAITING STATION ON STATE STREET

Early the past summer a raised concrete platform was built on State Street near Main Street for the convenience of the large number of people who board cars at this point. This platform served as an isle of safety and was an improvement over the old conditions, but it had barely been finished when a demand arose for some sort of a covering as a protection against storms. To meet this demand a shelter was designed and built of wood construction and with a roof of green Spanish tile. As an added protection against the cold winds and driving storms, the shelter is provided with panels which fit in between the posts on the north side. These panels or storm doors as they might be termed are constructed in such a manner that they may be easily removed if it is thought best to dispense with them during the summer months. Although necessarily limited as to size because of its position in the street, the structure affords shelter for the ordinary traffic and has proved a great convenience.

ELEVATIONS IN HARTFORD

A table of elevations in various sections of Hartford with a description of the method by which they are established appeared in the last department report. Knowing from numerous inquiries along this line that the information is of interest to many people I have made a number of additions to the table and include it in this report together with the descriptive matter referred to. In the first place it should be made clear just what is meant when we say that a street is at elevation 100 or 200 or whatever the figure may be. In Hartford all elevations are based upon the mean low-water level of Long Island Sound at Saybrook, this elevation being taken as zero. Therefore when we say, for instance, that a certain point in the city is at elevation one hundred and thirty-one and five-tenths (131.5), we are but saying in fewer words that such point is one hundred and thirty-one and one-half feet above average low-water at Long Island Sound. The elevation of the center at the north end of the east balustrade at the State Street entrance to the Post Office was established by the United States Army Engineer Corps as elevation 58.116 feet and this value was used as a datum in the leveling work in connection with the building of the new Connecticut River Bridge, and all freshet levels recorded by the gauge at the steamboat docks are also with relation to this datum. There is a difference of 1.574 feet between the city's system of elevation which was established some years ago, and that of the United States Army Engineer Corps. By the city system the elevation of the balustrade at the Post Office previously described is 59.690 feet, and to reduce the army elevations to city datum, 1.574 feet should be added. This would make the record freshet of 1854 recorded as 29 feet 10 inches (29.83), 31.404 by the city datum. The range in elevation from our lowest to our highest streets is about 210 feet.

The lowest streets in the city are of course those adjacent to the Connecticut River. Many of these streets were formerly flooded by every considerable freshet. The flooding has been partly overcome by the building of the Connecticut River bridge approach and the Connecticut Boulevard; the raising of the freight yards north of Morgan Street, and the construction of the new East Side sewer and pumping station.

The highest street in Hartford is Prospect Avenue at the summit between Asylum Street and Albany Avenue the elevation being about 230 feet. The second highest street is Holcomb Street at the Blind Institution where the elevation is about 180 feet.

The Engineering Department has established an extensive system of bench marks or reference points of elevation throughout the city the elevations of which are determined to a thousandth of a foot. These bench marks are used for all leveling work and are established upon definite points not likely to be disturbed.

A list of elevations at various points throughout the city follow:

Main St.	at	City Hall	is	at	elevation	about	61.80	feet
Main St.	"	Tunnel	"	"	"	"	64.50	"
State St.	"	Commerce St.	"	"	"	"	22.00	"
Albany Av.	"	Vine St.	"	"	"	"	60.50	"
Albany Av.	"	Blue Hills Av.	"	"	"	"	64.00	"
Albany Av.	"	Scarborough St.	"	"	"	"	58.00	"
Albany Av.	"	Prospect Av.	"	"	"	"	147.50	"
Bloomfield Av.	"	City Line	"	"	"	"	107.00	"
Blue Hills Av.	"	Tower Av.	"	"	"	"	148.50	"
Blue Hills Av.	"	City Line	"	"	"	"	143.30	"
Tower Av.	"	Barbour St.	"	"	"	"	76.00	"
Ridgefield St.	"	Plainfield St.	"	"	"	"	139.00	"
Ridgefield St.	"	Holcomb St.	"	"	"	"	164.00	"
Holcomb St.	"	Blind Institute	"	"	"	"	180.00	"
Windsor Av.	"	Mahl Av.	"	"	"	"	84.40	"
Windsor Av.	"	Windsor St.	"	"	"	"	33.20	"
Windsor Av.	"	City Line	"	"	"	"	51.00	"
Windsor St.	"	R. R. Crossing	"	"	"	"	31.50	"
Asylum St.	"	Junction with Farmington Av.	"	"	"	"	83.90	"
Asylum St.	"	Woodland St.	"	"	"	"	69.60	"
Asylum St.	"	Scarborough St.	"	"	"	"	93.50	"
Asylum St.	"	Prospect Av.	"	"	"	"	149.80	"
Prospect Av.	"	The Summit	"	"	"	"	230.00	"
Farmington Av.	"	" Cathedral	"	"	"	"	88.00	"
Farmington Av.	"	Woodland St.	"	"	"	"	59.50	"
Farmington Av.	"	Sisson Av.	"	"	"	"	71.00	"
Farmington Av.	"	Prospect Av.	"	"	"	"	100.60	"
Garden St.	"	Myrtle St.	"	"	"	"	106.50	"
Park St.	"	Main St.	"	"	"	"	62.00	"
Park St.	"	Washington St.	"	"	"	"	83.50	"
Park St.	"	Zion St.	"	"	"	"	94.50	"
Park St.	"	Sisson Ave.	"	"	"	"	67.70	"

Park St.	at	Prospect Ave.	is at elevation about	75.00	feet
Capitol Av.	"	Washington St.	" " " "	82.50	"
Summit St.	"	Vernon St.	" " " "	155.20	"
New Britain Av.	"	Broad St.	" " " "	118.30	"
New Britain Av.	"	Oliver St.	" " " "	132.00	"
New Britain Av.	"	Newington Av.	" " " "	85.00	"
New Britain Av.	"	City Line	" " " "	52.00	"
Wethersfield Av.	"	Bond St.	" " " "	60.30	"
Wethersfield Av.	"	City Line	" " " "	34.60	"
Franklin Av.	"	Bond St.	" " " "	47.20	"
Franklin Av.	"	City Line	" " " "	51.00	"
Maple Av.	"	Bond St.	" " " "	85.00	"
Maple Av.	"	Junction Fairfield Av.	" " " "	152.00	"
Fairfield Av.	"	White St.	" " " "	158.50	"
Fairfield Av.	"	Summit S. of N. Britain Av.	" " " "	165.00	"

This opportunity is taken to repeat recommendations made in previous reports, namely, that the policy of providing the main avenues of entrance to the city with improved pavement be vigorously prosecuted, and that the great work of relieving the East Side of the city from liability of flood damage, so ably begun by the construction of the East Side intercepting sewer and pumping station, be continued as soon as the city's finances will permit, by the extension of the dyke, now formed by the Connecticut Boulevard, southerly via Commerce Street to the Park River.

In conclusion I take pleasure in testifying to the cordial and mutually helpful relations existing between this department and the several other departments, boards and officials, and to the loyalty and industry with which my co-workers in the department meet the duties imposed upon them.

Respectfully submitted,

ROSCOE N. CLARK,

CITY ENGINEER.

SEWER TABLE FOR YEAR ENDING MARCH 31, 1914

STREET	LOCATION	CONTRACTOR	Size Inches	Material	Length Feet	House Connections No.	House Connections Length	No. Man-holes	COST	REMARKS
Baltimore Street	Homestead Ave. to Albany Ave.		..	......	.....	..	...	..	....	See Homestead Ave.
Bloomfield Avenue	Albany Ave. to City Line	Berardino Silvestri	18	Tile	581.1					
			15	Tile	272.5	16	208	4	$2856.78	Begun in 1912 Data given for 1913. Cost in 1912 table $6330.00 Cost in 1913 table 2856.78 Total cost $9186.78 Paid by Conn. Co. (H. C.) 410.00 Assessed on property $8776.78
Bonner Street System			12	Tile	25.2					
Private Lands	Wilson St. to Bonner St.	Don O'Connor	30	Concrete	97.1	..	...	2		
			42	Concrete	250.7					
Bonner Street	Cross line at west end to Hillside Ave.		30	Concrete	469.8					
		Don O'Connor	18	Tile	259.9	46	575	5	8254.49	Entire cost assessed on property benefited.
			10	Tile	460.2					
Ledger Street	Bonner St. to Catherine St.	Don O'Connor	20	Tile	423.7					
			15	Tile	384.4	25	375	2		
Wilton Street	Ledger St. to Hillside Ave.	Don O'Connor	10	Tile	352.0	9	135	1		
Catherine Street	Ledger St. to Hillside Ave.	Don O'Connor	10	Tile	255.2	8	120	1		
Broadview Terrace	Northeast of Chandler St.	Joseph Dart	15	Tile	230.0	8	120	1	548.33	Built and paid for by private parties under Drain Layers Rules.
			10	Tile	28.3					
Private lands	Green Ave. to New Britain Ave.	C. H. Slocomb & Co.	24	Tile	326.1	..	...	3		
and in			18	Tile	350.2					
Broadview Terrace	330′ west of Newington Ave., to 530′ east of Newington Ave.	C. H. Slocomb & Co.	15	Tile	163.7	32	480	3	4329.95	Construction cost $3829.95 Damage for right of way 500.00 Total cost $4329.95 City paid 2230.58 Assessed on property 2099.37
			10	Tile	711.4					
Capitol Avenue Ext.	Smith St. to Newton St.	DiMarco & DiBerardino	10	Tile	329.6	10	192	1	765.44	Entire cost assessed on property.

SEWER TABLE FOR YEAR ENDING MARCH 31, 1914 — Continued

STREET	LOCATION	CONTRACTOR	Size Inches	Material	Length Feet	House Connections		No. Man-holes	COST	REMARKS
						No.	Length			
Catherine Street	Ledger St. to Hillside Ave.		..	.....	.....	..	...	..	....	See Bonner St. System.
Cheshire Street	White St. northerly 400 ft.	F. B. & W. H. O'Neil	12	Tile	400.0	9	135	1	$1457.10	Entire cost assessed on property.
Cheshire Street	Southbury St. to White St.		..	.....	.....	..	...	..	....	See Monroe St.
East Side Interceptor (See also North Front Street)	Keeney Lane, Pumping Station	H. Wales Lines Co.	84 90	Concrete	.....	..	...	..	......	Included in Pumping Station Contract.
Enfield Street	Mather St. northerly 450′	Louis Rogers	10	Tile	449.8	13	195	3	785.29	Entire cost assessed on property benefited.
Homestead Avenue	Near Adams St. to Baltimore St.	F. B. & W. H. O'Neil	15	Tile	513.1	7	28	4		
Kent Street	Homestead Ave. to Albany Ave.	F. B. & W. H. O'Neil	12	Tile	542.8					
			10	Tile	234.1	26	390	4	4069.11	Entire cost assessed on property benefited.
Baltimore Street	Homestead Ave. to Albany Ave.	F. B. & W. H. O'Neil	12	Tile	302.7					
Interceptor			10	Tile	281.9	18	270	2		
(Park River)	in Keeney Lane	F. B. & W. H. O'Neil	56	Concrete	126.7	0	...	1	3016.98	Rebuilding old sewer, entire cost paid by City.
			56	Concrete Arch only	34.6					
Jefferson Street	Broad St. to Affleck St.	Petrossi Bros.	12	Tile	267.8					
			10	Tile	280.5	14	210	2		
Madison Street	Broad St. to Affleck St.	Petrossi Bros.	12	Tile	218.9				1857.77	Entire cost assessed on property benefited.
			10	Tile	323.6	16	240	2		
Kennedy Street	end former sewer to Windsor Ave.	J. J. Russo	10	Tile	76.0	1	15	0	90.00	Built and paid for by private parties under Drain Layers Rules.
Kent Street	Homestead Ave. to Albany Ave.		..	.....	.....	..	...	..	....	See Homestead Ave.
Ledger Street	Bonner St. to Catherine St.		..	.....	.....	..	...	..	....	See Bonner St. System.
Madison Street	Broad St. to Affleck St.		..	.....	.....	..	...	..	....	See Jefferson St.
Marsh Court	Market St. to near Village St.	Petrossi Bros.	12	Tile	148.3					
			10	Tile	173.3	8	...	2	1050.00	Built and paid for by private parties under Drain Layers Rules.
Milford Street	Homestead Ave. to Albany Ave.	Contract of John Dinallo Finished by J. M. D'Esopo	..	.....	.....	31	465		260.88	Begun prior to 1913. Cost in 1912 table $8449.85 Cost in this table 260.88 Total Cost $8710.73 Entire cost assessed on property benefited.

Monroe Street	White St. to Southbury St.	F. B. & W. H. O'Neil	15	Tile	685.8	0	...	3		
Southbury Street	Monroe St. to Fairfield Ave.	F. B. & W. H. O'Neil	12	Tile	350.6				3100.00	Built and paid for by private parties under the Drain Layers Rules.
			10	Tile	175.2	2	30	2		
Cheshire Street	Southbury St. to White St.	F. B. & W. H. O'Neil	10	Tile	470.0	1	15	1		
No. Beacon Street	Former end of sewer southerly to near Cone St.	F. G. Harmon	10	Tile	85.0	1	10	0	100.00	Built and paid for by private parties under the Drain Layers Rules.
No. Front Street	Avon St. northerly to Railroad	DiMarco & DiBerardino	12	Tile	400.8	8	294.5	8	1216.81	Entire cost paid for by City from appropriation for East Side Interceptor. Cost includes altering 8 manholes on N. E. sewer.
Roger Street	White to Southbury St.	C. H. Slocomb & Co.	12	Tile	731.6	17	255	8		
Southbury Street	Roger St. westerly	C. H. Slocomb & Co.	10	Tile	161.0	5	75	1	2430.85	Entire cost assessed on property benefited.
Southbury Street	Monroe St. to Fairfield Ave.		..	.....	.....	..	...	..	....	See Monroe St.
Terry Road	Albany Ave. to Asylum Ave.	C. H. Slocomb & Co.	80	Vit. Block	1192.5	0	...	11	19624.25	Entire cost assessed on property benefited.
			36	Vit. Block	640.6					
			24	Tile	642.6					
			20	Tile	341.5					
			12	Tile	329.7					
Temple Street	Market St. westerly (Repaving trench only)		..	.....	.....	..	...	..	445.37	Cost of sewer in 1912 Table $736.78 Cost of paving in this table 445.37 Total cost $1182.15 City paid $547.65 Assessed on Property 634.50
Warrenton Avenue	Smith St. easterly 173'	Joseph Guerra	8	Tile	173.0	..	...	..	155.00	Built and paid for by private parties under Drain Layers Rules.
Washington Street	Vernon St. to Car Yard	Connecticut Company	12	Tile	442.9	..	...	..	487.00	Built under Drain Layers Rules by Conn. Co. to drain catch basin.
Wellington Street	Hamilton St. northerly 300'	Louis Rogers	12	Tile	301.4	3	36	1	495.07	Entire cost assessed on property benefited.
Wilton Street	Ledger St. to Hillside Ave.		..	.....	.....	..	...	..	....	See Bonner St. System.
Totals			(3.31 miles)		17469.2	334	4866.5	69	$57395.47	

161.3 Replaced existing sewer.
(3.28 miles) 17307.9 Net increase in sewers in use.
128.78 Miles Total main sewers in use.

SEWER TABLE FOR YEAR ENDING MARCH 31, 1914—Continued

SUMMARY BY MATERIALS

Material	Feet	Miles	Per Cent.
Tile	14657.2	2.78	83.9
Concrete	944.3	0.17	5.4
Concrete arch, brick invert	34.6	0.01	0.2
Vitrified clay block	1833.1	0.35	10.5
Totals	17469.2	3.31	100.00

SUMMARY BY METHOD OF PAYMENT

	LENGTH		Per Cent. Total Length	Cost	Per Cent Total Cost
	Feet	Miles			
Entire Cost assessed on property	12317.3	2.33	70.6	$42446.53	74.0
Entire Cost paid by City	562.1	0.10	3.2	4233.29	7.4
Cost divided between City and property	1579.7	0.31	9.0	4775.32	8.3
Built and paid for by private parties under Drain Layers Rules	3010.1	0.57	17.2	5530.33	9.6
Paid for by Connecticut Co., laterals on Bloomfield Ave.	......	....	....	410.00	0.7
Totals	17469.2	3.31	100.0	$57395.47	100.0

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1914

STREET	LOCATION	DESCRIPTION	KIND	TRACKS	Price per sq. yd.	Assessment per front foot	Final Payment	Guarantee Expires
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	N. side & tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Allyn Street	Trumbull to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	June 12, 1899	June 12, 1904
Amer. & Cen. Rows	E. of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct 12, 1901
Amer. & Cen. Rows	E. of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Asylum Street	Spruce to Farmington Ave.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street	Spruce to Farmington Ave.	Tracks relaid	Granite Block	D. T.			1911	
Asylum Street	Main to Ford St	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce to Farmington Ave.	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sept. 26, 1898	Sept. 26, 1903
Asylum Street	Main to Spruce St.	Repaved	Sheet Asphalt	S. & D.	2.28	By City	Oct. 12, 1908	Oct. 12, 1918
Asylum Street	Spruce to Garden St.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Spruce to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Hopkins to Farmington Ave.	S. side resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Atheneum Street	Prospect to Main St.	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No			1897	
Capitol Avenue	Lafayette to Park River	Paved	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 26, 1905
Capitol Avenue	Lafayette to Broad St.	N. side resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Lafayette to Broad St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Broad St. to Park River	Both sides resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.			1895	
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	2.65	By City	Dec. 6, 1911	No guarantee
Central Row	Main to Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12; 1901
Central Row	Main to Post Office	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Church Street	Main to Trumbull St.	Paved	Sheet Asphalt	No	2.59	2.1163	Nov. 8, 1897	Nov. 8, 1902
Church Street	Main to Trumbull St.	Resurfaced	Sheet Asphalt	No	1.67	By City	July 28, 1909	July 28, 1914

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1914—Continued

STREET	LOCATION	DESCRIPTION	KIND	TRACKS	Price per sq. yd.	Assessment per front foot	Final Payment	Guarantee Expires
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	$2.51	$3.001	Nov. 26, 1900	Nov. 26, 1905
Church Street	Union Pl. to Spruce St.	Resurfaced	Sheet Asphalt	No	1.39	By City	Sept. 29, 1913	Sept. 29, 1918
Church Street	Spruce St. Westerly	Paved	Granite Block	No	3.63	4.1578	Oct. 15, 1913	Oct. 15, 1914
Farmington Avenue	Asylum to Woodland St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue	Asylum to Sigourney St.	Full width resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sigourney to Woodland St.	Both sides resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sigourney to Woodland St.	Tracks relaid	Sheet Asphalt	D. T.			1909	
Farmington Avenue	Woodland to Tremont St.	Paved	Sheet Asphalt	D. T.	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue	Tremont to Prospect Ave.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ford Street	Pearl to Asylum St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sept. 26, 1898	Sept. 26, 1903
Ford Street	Pearl to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1918
Front Street	State to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Front Street	State to Morgan St.	Paved	Sheet Asphalt	No	2.15	2.8721	Dec. 5, 1913	Dec. 5, 1918
Gold Street	Main to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sept. 11, 1898	Sept. 11, 1903
Grove Street	Main to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No			1898	
Haynes Street	Pearl to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church to Main St.	Resurfaced	Sheet Asphalt	No	1.27	By City	May 19, 1911	May 19, 1916
Hopkins Street	Broad to Asylum St.	Paved	Sheet Asphalt	No	2.58	2.3865	June 12, 1899	June 12, 1904
Kinsley Street	Market to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903
Laurel Street	Bridge over Park River	Paved	Brick	S. T.			1894	
Laurel Street	Bridge over Park River	Repaved	Brick	S. T.	2.40	By City	July 11, 1900	
Lewis Street	Pearl to Gold St.	Paved	Sheet Asphalt	No	2.51	1.808	Sept. 24, 1900	Sept. 24, 1905
Main Street	Arch to Morgan St.	Paved	Sheet Asphalt	D. T.	2.49	5.4887	Dec. 14, 1896	Dec. 14, 1901
Main Street	Morgan to Windsor Ave.	Paved	Sheet Asphalt	D. T.	2.70	4.6395	Oct. 11, 1897	Oct. 11, 1902
Main Street	Wyllys to Arch St.	Paved	Sheet Asphalt	D. T.	2.66	4.5750	Oct. 25, 1897	Oct. 25, 1902

Main Street	State St. north	Tracks repaved	Wood Block	D.	T.			1903	
Main Street	Engine House No. 1 to Wells	W. side resurfaced	Sheet Asphalt	D.	T.	$1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Charter Oak Ave. to Atheneum St.	E. side resurfaced	Sheet Asphalt	D.	T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Jefferson to Park St.	W. side resurfaced	Sheet Asphalt	D.	T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Windsor St. to Windsor Ave.	N. side resurfaced	Sheet Asphalt	D.	T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Jefferson to Park St.	Tracks resurfaced	Sheet Asphalt	D.	T.			1912	
Main Street	Wyllys to N. end of South Green	Tracks resurfaced	Sheet Asphalt	D.	T.			1908	
Main Street	Park to No. 1 Engine House	W. side resurfaced	Sheet Asphalt	D.	T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Triangle N. end S. Green	Resurfaced	Sheet Asphalt	D.	T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Atheneum to Central Row	E. side resurfaced	Sheet Asphalt	D.	T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	State to Windsor St.	E. side resurfaced	Sheet Asphalt	D.	T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Wells to Ann Street	W. side resurfaced	Sheet Asphalt	D.	T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Market Street	State to Temple St.	Paved	Sheet Asphalt	S.	T.	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1903
Market Street	Temple to Morgan St.	Paved	Sheet Asphalt	S.	T.	2.56	2.3270	Oct. 9, 1899	Oct. 9, 1904
Market Street	State to Morgan St.	W. side & tracks resurfaced	Sheet Asphalt	S.	T.	1.65	By City	Aug. 4, 1904	Aug. 4, 1914
Marsh Court	Market to Village St.	Paved	Sheet Asphalt	No		2.15	1.1455	Dec. 5, 1913	Dec. 5, 1918
Morgan Street	Market to Main St.	Paved	Granite Block	S.	T.	3.09	2.1525	Dec. 27, 1898	Aug. 27, 1899
Morgan Street	Intersection with Front	Paved	Granite Block	D.	T.		By City	Dec. 5, 1913	No guarantee
Morgan Street	Front to Market St.	Paved	Sheet Asphalt	D.	T.	2.15	3.1641	Dec. 5, 1913	Dec. 5, 1918
Mulberry Street	Main to Wells St.	Paved	Sheet Asphalt	No		2.55	2.6970	Nov. 14, 1898	Nov. 14, 1903
Park Street	Under R. R. Bridge	Paved	Granite Block	S.	T.	3.35	By City	Nov. 27, 1899	July 27, 1900
Park Street	Under R. R. Bridge	Relaid	Granite Block	S.	T.	1.35	By City	Oct. 4, 1910	No guarantee
Park Street	Under R. R. Bridge	Repaved	Granite Block	D.	T.	Paid	By R. R.	1912	
Park Street	Bridge over Park River	Paved	Sheet Asphalt	D.	T.			1898	
Park Street	Bridge over Park River	Relaid	Sheet Asphalt	D.	T.	Paid	By R. R.	1912	
Pearl Street	Main to Ford St.	Paved	Block Asphalt	S.	T.	2.89	3.8380	July 22, 1895	July 22, 1900
Pearl Street	Main to Ford St.	Repaved	Sheet Asphalt	S.	T.	2.70	By City	Sept. 10, 1903	Sept. 10, 1913
Pearl Street	Main to Ford St.	Tracks relaid	Sheet Asphalt	D.	T.			1910	
Pleasant Street	Winthrop to Main St.	Paved	Sheet Asphalt	No		2.56	2.3373	July 11, 1898	July 11, 1903
Pleasant Street	Windsor to Railroad	Paved	Sheet Asphalt	No		2.15	2.7830	Dec. 5, 1913	Dec. 5, 1918
Pratt Street	Main to Trumbull St.	Paved	Brick	No			By City	1892	
Pratt Street	Main to Trumbull St.	Surfaced	Sheet Asphalt	No		1.68	1.4285	Aug. 14, 1899	Aug. 14, 1904

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1914—Continued

STREET	LOCATION	DESCRIPTION	KIND	TRACKS	Price per sq. yd.	Assessment per front foot	Final Payment	Guarantee Expires
Prospect Street	Atheneum St. to Central Row	Paved	Sheet Asphalt	No	$2.55	$2.5256	July 25, 1898	July 25, 1903
Prospect Street	Grove to Central Row	Resurfaced	Sheet Asphalt	No	1.27	By City	Oct. 23, 1912	Oct. 23, 1917
Sheldon Street	Main to Union St.	Paved	Sheet Asphalt	No	2.20	2.5747	Oct. 4, 1911	Oct. 4, 1916
Sheldon Street	Union to Commerce St.	Paved	Sheet Asphalt	No	2.16	3.0100	Oct. 23, 1912	Oct. 23, 1917
Spruce Street	Asylum to Church St.	Paved	Sheet Asphalt	No	2.51	3.0163	Oct. 1, 1900	Oct. 1, 1905
Spruce Street	Church St. northerly	Paved	Granite Block	No	3.63	4.3221	Oct. 15, 1913	Oct. 15, 1914
State Street	Main to Commerce St.	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
State Street	City Hall to Main St.	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. westerly	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. to Conn. Boulevard	Repaved	Sheet Asphalt	D. T.	2.16	By City	Dec. 9, 1912	Dec. 9, 1917
State Street	Conn. Boul. to Commerce St.	Covered	Macadam	No		By City	1908	
State Street	Front St. to City Hall	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Talcott Street	Market to Main St.	Paved	Granite Block	No	3.09	2.7184	Sept. 26, 1898	May 26, 1899
Talcott Street	Market to Main St.	Paved	Sheet Asphalt	No	2.75	2.7184	Sept. 26, 1898	Sept. 26, 1903
Temple Street	Market to Main St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	E. side & tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1913
Trumbull Street	Asylum to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27, 1898	June 27, 1903
Union Place	Asylum to Church St.	Paved	Granite Block	No	3.37		1894	
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Windsor Avenue	Main to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sept. 11, 1899	Sept. 11, 1904
Windsor Avenue	Main to Canton St.	Tracks relaid	Sheet Asphalt	D. T.			1907	
Windsor Avenue	Canton to Capen St.	Tracks relaid	Sheet Asphalt	D. T.			1910	
Windsor Street	Main to the Park	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903

NOTE:—Price given, except for resurfacing, is for completed pavement (asphalt and concrete, exclusive of excavation).

IMPROVED PAVEMENTS IN HARTFORD JANUARY 1, 1914

STREET	LOCATION	TRACKS	Sheet Asphalt sq. yards	Granite Block sq. yards	Asphalt Block sq. yards	Brick sq. yards	Wood Block sq. yards	Length in miles
Albany Avenue	Windsor Ave. to East St.	D. T.	4520.00	......	......	......	......	0.21
Allyn Street	Trumbull St. to Union Pl.	No	6041.00	......	......	.....	......	0.29
Amer. & Cen. Rows	E. of Post Office	D. T.	....	1885.00	......	.....	......	0.03
Ann Street	Asylum St. to Allyn St.	No	1170.26	......	......	.....	......	0.06
Asylum St.	Spruce to Farmington Ave.	D. T.	....	4658.72	......	.....	......	0.16
Asylum Street	Spruce to Farmington Ave.	D. T.	1701.58	......	......	.....	......	....
Asylum Street	Main to Spruce St.	S. T. & D. T.	10351.20	......	......	.....	......	0.48
Atheneum Street	Prospect to Main St.	No	558.33	......	......	.....	......	0.07
Broad Street	Bridge over Park River	No	451.55	......	......	.....	......	0.02
Capitol Avenue	Lafayette to Park River	D. T.	15075.34	......	......	......	......	0.60
Capitol Avenue	Park River to Laurel St.	D. T.	4067.50	......	......	.....	......	0.18
Capitol Avenue	Bridge over Park River	S. T.	....	......	......	.....	442.60	0.03
Central Row	Main St. to Post Office	D. T.	2000.00	......	......	.....	......	0.05
Church Street	Main to Trumbull St.	No	1399.24	......	......	.....	......	0.11
Church Street	Union Pl. to Spruce St.	No	957.00	......	......	.....	......	0.06
Church Street	Spruce St. westerly	No	....	238.17	......	.....	......	0.01
Farmington Avenue	Asylum to Prospect Ave.	D. T.	42630.44	......	......	.....	......	1.60
Ford Street	Pearl to Asylum St.	D. T.	2658.90	......	......	.....	......	0.10
Front Street	State to Sheldon St.	No	5191.46	......	......	.....	......	0.30
Front Street	State to Morgan St.	No	4583.29	......	......	.....	......	0.26
Gold Street	Main to Lewis St.	No	1458.00	......	......	.....	......	0.08
Grove Street	Main to Front St.	No	2342.07	......	......	.....	......	0.19
Hamilton Street	Bridge over Park River	No	369.00	......	......	.....	......	0.02
Haynes Street	Pearl to Asylum Street	No	....	......	718.42	.....	......	0.05
High Street	Asylum to Main St.	No	6341.00	......	......	.....	......	0.42
Hopkins Street	Broad to Asylum St.	No	3135.80	......	......	.....	......	0.21
Kinsley Street	Market to Main St.	No	1037.20	......	......	.....	......	0.09
Laurel Street	Bridge over Park River	S. T.	....	......	......	411.00	......	0.02
Lewis Street	Pearl to Gold St.	No	1085.00	......	......	.....	......	0.10
Main Street	Wyllys to Windsor Ave.	D. T.	56414.27	......	......	.....	......	1.47
Main Street	State St. north	D. T.	....	......	......	.....	500.00	0.06
Market Street	State to Morgan St.	S. T.	5255.28	......	......	.....	......	0.25
Marsh Court	Market to Village St.	No	552.95	......	......	.....	......	0.08
Morgan Street	Market to Main St.	S. T.	....	1520.87	......	.....	......	0.10
Morgan Street	Market to Front St.	S. T. & D. T.	2213.94	......	......	.....	......	0.09
Morgan Street	Intersection of Front St.	D. T.	....	342.71	......	.....	......	....

IMPROVED PAVEMENTS IN HARTFORD, JANUARY 1, 1914.—Continued

STREET	LOCATION	TRACKS	Sheet Asphalt sq. yards	Granite Block sq. yards	Asphalt Block sq. yards	Brick sq. yards	Wood Block sq. yards	Length in miles
Mulberry Street	Main to Wells St.	No	1298.85	......	......	.....	......	0.08
Park Street	Under R. R. Bridge	D. T.	....	560.00	......	.....	......	0.03
Park Street	Bridge over Park River	D. T.	555.50	......	......	.....	......	0.02
Pearl Street	Main to Ford St.	D. T.	8188.50	......	......	.....	......	0.32
Pleasant Street	Winthrop to Main St.	No	1010.41	......	......	.....	......	0.07
Pleasant Street	Windsor St. to Railroad	No	2239.71	......	......	.....	......	0.14
Pratt Street	Main to Trumbull St.	No	1438.00	......	......	.....	......	0.11
Prospect Street	Atheneum to Central Row	No	1802.62	......	......	.....	......	0.13
Sheldon Street	Main to Commerce St.	No	5640.26	......	......	.....	......	0.35
Spruce Street	Asylum to Church St.	No	2286.00	......	......	.....	......	0.12
Spruce Street	Church St. northerly	No	....	1527.82	......	.....	......	0.09
State Street	City Hall to Main St.	D. T.	1395.00	......	......	.....	......	0.04
State Street	Front to Conn. Boulevard	D. T.	2609.94	......	......	.....	......	0.09
State Street	Front St. westerly	D. T.	343.10	......	......	.....	......	....
State Street	Front St. to City Hall	D. T.	....	4501.81	......	.....	......	0.15
Talcott Street	Market to Main St.	No	....	950.42	......	.....	......	0.09
Talcott Street	Market to Main St.	No	340.20	......	......	.....	......	....
Temple Street	Market to Main St.	No	1051.87	......	......	.....	......	0.09
Trinity Street	Capitol Ave. to Ford St.	S. T. & D. T.	6947.80	......	......	.....	......	0.27
Trumbull Street	Asylum to Main St.	No	5341.77	......	......	.....	......	0.25
Trumbull Street	Pearl to Asylum St.	No	....	......	1377.13	.....	......	0.04
Union Place	Asylum to Church St.	No	....	3267.00	......	.....	......	0.12
Village Street	Windsor to Pleasant St.	No	1927.30	......	......	.....	......	0.11
Windsor Avenue	Main to Capen St.	D. T.	19786.20	......	......	.....	......	0.75
Windsor Street	Main St. to the Park	No	....	2018.10	......	.....	......	0.06
Windsor Street	The Park to Pleasant St.	No	2318.12	......	......	.....	......	0 11
Totals			250082.75	21470.62	2095.55	411.0	942.60	11.48

Total yardage all pavements—........................275002.52 sq. yards

Total length in miles— Asphalt—10.44 miles Granite block—0.84 miles Wood block—0.09 miles
Asphalt block—0.09 miles Brick—0.02 miles

Total length all pavements—11.48 miles.

TABLE SHOWING THE NUMBER OF SQUARE YARDS LAID YEARLY AND THE MILEAGE ACTUALLY COVERED OF THE DIFFERENT KINDS OF IMPROVED PAVEMENT LAID IN HARTFORD SINCE 1892. THIS TABLE INCLUDES ONLY NEW PAVEMENT LAID—NO REPAIR WORK

Year Laid	BRICK		BLOCK ASPHALT		GRANITE BLOCK		WOOD BLOCK		SHEET ASPHALT		Total Yardage Laid Each Year	Total Miles
	Yardage	Miles	Yardage	Miles	Yardage	Miles	Yardage	Miles	Yardage	Miles		
1892	1427.55	0.11	....	....	....	....	......	....	....	....	1427.55	0.11
1894	411.00	0.02	....	....	3267.00	0.12	......	....	....	....	3678.00	0.14
1895	442.60	0.03	7755.50	0.32	....	....	......	....	....	....	8198.10	0.35
1896	....	....	12063.32	0.38	....	....	......	....	21466.71	0.63	33530.03	1.01
1897	....	....	6694.04	0.36	....	....	......	....	45074.48	1.51	51768.52	1.87
1898	....	....	8925.19	0.32	9148.10	0.40	......	....	21974.39	1.11	40047.68	1.83
1899	....	....	....	....	560.00	0.03	......	....	63784.40	3.10	64344.40	3.13
1900	....	....	....	....	....	....	......	....	23923.34	1.06	23923.34	1.06
1903	....	....	....	....	....	....	600.00	0.06	8188.50	0.32	8788.50	0.38
1908	....	....	....	....	1756.94	0.07	......	....	13010.10	0.58	14767.04	0.65
1909	....	....	....	....	4629.87	0.12	......	....	7805.60	0.28	12435.47	0.40
1910	....	....	....	....	....	....	......	....	14487.97	0.50	14487 97	0.50
1911	....	....	....	....	....	....	442.60	0.03	10963.41	0.50	11406.01	0.53
1912	....	....	....	....	....	....	......	....	10583.97	0.58	10583.97	0.58
1913	....	....	....	....	2108.70	0.10	......	....	9589.89	0.57	11698.59	0.67
Totals	2281.15	0.16	35438.05	1.38	21470.61	0.84	1042.60	0.09	250852.76	10.74	311085.17	13.21

NOTE: — The original paving on several streets has been removed and replaced by other pavements, and since this table contains both the original and the present pavement, the totals given here exceed the total yardage and miles in use at the present time as shown in another table.

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID

STREET	LOCATION	ASPHALT USED	Year Laid
Albany Avenue	Windsor Ave. to Tunnel, entire and S. side Tunnel to East St.	Trinidad	1900
Albany Avenue	North side and tracks, Tunnel to East St.	California (Atlas)	1909
Allyn Street	Trumbull St. to Union Place	Trinidad	1899
Ann Street	Asylum to Allyn St.	Trinidad	1898
Asylum Street	Main to Spruce St.	Bermudez	1908
Asylum Street	Strips on both sides Spruce St. to Garden and Hopkins Sts.	Bermudez and California (Atlas)	1912
Asylum Street	Strip on north side, Garden to Farmington Ave.	Trinidad	1898
Asylum Street	Strip on south side, Hopkins St. to Farmington Ave.	Bermudez with about 5% California	1913
Atheneum Street	Prospect to Main Street	Trinidad	1896
Broad Street	Bridge over Park River	Trinidad	1897
Capitol Avenue	Both sides, Park River Bridge to Laurel Street	Bermudez	1909
Capitol Avenue	North side Hungerford St. to Lafayette St.	Bermudez	1910
Capitol Avenue	South side and south track Broad St. to Lafayette St.	Bermudez	1911
Capitol Avenue	North track and dummy 150 feet east of Oak St. to Lafayette St.	Bermudez	1911
Capitol Avenue	Both sides and tracks patches in dummy Broad St. to Park River Bridge	Bermudez	1911
Capitol Avenue	Tracks Park River Bridge to Laurel St.	California (Atlas)	1909
Capitol Avenue	North side Hungerford St. to Broad St.	California (Atlas)	1910
Capitol Avenue	South side Lafayette St. Intersection	California (Atlas)	1911
Central Row	Main St. to Granite Block	Bermudez (small area California)	1911
Central Row	South side from Granite Block—155 feet west	California (Atlas)	1909
Church Street	Main to Trumbull Street	California (Atlas)	1909
Church Street	Union Place to Spruce St.	Bermudez with about 5% California	1913
Church Street	Intersection at Spruce St.	Equal parts Trinidad and Bermudez	1913
Farmington Avenue	South track and dummy Sigourney to Woodland St.	Bermudez	1909
Farmington Avenue	Woodland St. to 100 feet east of Tremont St.	Bermudez	1910
Farmington Avenue	South side south track and dummy from 110 feet east of Tremont St. to 120 feet west of Beacon St.	Bermudez and Trinidad	1911
Farmington Avenue	North side and north track from 110 feet east of Tremont St. to 140 feet west of Beacon St.	California and Bermudez	1911
Farmington Avenue	North track Sigourney St. to Woodland St.	California (Atlas)	1909
Farmington Avenue	From 120 feet west of North Beacon St. and from 140 feet west of North Beacon St. to City Line—both sides	California (Atlas)	1911

Farmington Avenue	North and south sides from Asylum to Woodland Sts.	Bermudez and California about 5% California (Atlas)	1913
Farmington Avenue	North and south tracks and dummy from Sigourney St. to Asylum St.	Bermudez and California about 5% California (Atlas)	1913
Ford Street	Asylum St. to Bridge	Bermudez	1908
Front Street	Potter to Sheldon St.	Bermudez and California	1912
Front Street	State to Potter St.	California (Acme)	1912
Front Street	State to Morgan St.	Bermudez with about 5% California (Atlas)	1913
Front Street	Intersection at Talcott St.	Equal parts Trinidad and Bermudez	1913
Gold Street	Main to Lewis St.	Trinidad	1898
Grove Street	Front to Prospect St.	California (Acme)	1912
Grove Street	Prospect to Main St.	Trinidad	1898
Hamilton Street	Bridge over Park River	Trinidad	1898
High Street	Church St. to Main St.	Bermudez	1911
High Street	Asylum to Church St.	Trinidad	1899
Hopkins Street	Broad to Asylum St.	Trinidad	1899
Kinsley Street	Market to Main St.	Trinidad	1898
Lewis Street	Pearl to Gold St.	Trinidad	1900
Main Street	Tracks Wyllys St. to north end of South Green	Bermudez	1908
Main Street	Tracks Central Row to State St. and Pearl St. Intersection	Bermudez	1909
Main Street	East side Atheneum St. to 80 feet north of Arch St.	Bermudez	1910
Main Street	Sheldon St. Intersection	Bermudez	1910
Main Street	From 140 feet north of, to 100 feet south of Charter Oak Ave.	Bermudez	1910
Main Street	West side Wells St. to Engine House No. 1	Bermudez	1910
Main Street	North side Windsor Ave. to 120 feet east of Pleasant St.	Bermudez	1911
Main Street	West side from Jefferson St. 80 feet north and tracks 190 feet north	Bermudez	1912
Main Street	From Grove St. 270 feet south, East Side	Bermudez	1912
Main Street	From Windsor St. to 50 feet north of Talcott St.	Bermudez	1912
Main Street	Central Row to 70 feet north of Grove St.	Bermudez	1912
Main Street	From State to 100 feet north of Temple St.	Bermudez	1912
Main Street	West side, Asylum St. to Grove St.	Bermudez and California (Acme)	1912
Main Street	West side, Wells St. to 180 feet south of Mulberry St.	Bermudez and California (Atlas)	1912
Main Street	Asylum St. to 110 feet north of Church St.	Bermudez and California (Atlas)	1912
Main Street	East side of Atheneum St. to 70 feet north of Grove St.	Bermudez and California (Atlas)	1912
Main Street	From 100 feet north of Temple St. to 50 feet North of Talcott St.	Bermudez and California (Atlas)	1912

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID—Continued

STREET	LOCATION	ASPHALT USED	Year Laid
Main Street	Triangle between tracks north of South Green	Bermudez and California (Atlas)	1912
Main Street	South side from Ann St. 540 feet easterly	Bermudez and California (Atlas)	1912
Main Street	West side, Park St. to 80 feet north of Jefferson St.	Bermudez and Trinidad	1911
Main Street	North side from 270 feet south of Grove St. to 180 feet south of Mulberry St.	California (Acme)	1912
Main Street	Track work at Main, State and Asylum Sts. intersection	California (Atlas)	1909
Main Street	North Side, Windsor St. to 120 feet east of Pleasant St.	California (Atlas)	1911
Main Street	Tracks at Park St. to 190 feet north of Jefferson St.	California (Atlas)	1912
Main Street	West side, Park St. to Engine House No. 1	California (Atlas)	1912
Main Street	South west side from 540 feet east of Ann St. to 110 feet north of Church St	California (Atlas)	1912
Main Street	South west corner of Pearl St.	California (Obispo)	1909
Main Street	East side, from 80 feet north of Arch St. to Sheldon St.	California (Obispo)	1910
Main Street	East side from Sheldon St. to 140 feet north of Charter Oak Ave.	California (Obispo)	1910
Main Street	East side, Central Row to State St.	Trinidad	1896
Main Street	Both sides Wyllys St. to Park St.	Trinidad	1897
Main Street	East side, Park St. to 100 feet south of Charter Oak Ave.	Trinidad	1897
Main Street	Tracks from north line of Park St. to South Green	Trinidad	1910
Market Street	West side and track, Morgan to State St.	California (Atlas)	1909
Market Street	East side, State St. to Temple St.	Trinidad	1898
Market Street	East side, Temple St. to Morgan St.	Trinidad	1899
Marsh Court	Village St. to Market St.	Bermudez with about 5% California	1913
Morgan Street	Both sides and tracks from Market to Front St.	Bermudez with about 5% California	1913
Mulberry Street	Main to Wells St.	Trinidad	1898
Park Street	Bridge over Park River	Bermudez	1912
Pearl Street	Tracks Main St. to 150 feet west	Bermudez	1909
Pearl Street	Tracks from 150 feet west of Main St. to Ford St.	Bermudez	1910
Pearl Street	Both sides Main St. to Ford St.	Trinidad	1903
Pleasant Street	Winthrop to Main St.	Trinidad	1908
Pleasant Street	Windsor St. to Railroad	Trinidad, Windsor to Market St. Trinidad & Bermudez Market to R.R.	1913
Pratt Street	Main to Trumbull St.	Trinidad	1899
Prospect Street	Central Row to Grove St.	California (Acme)	1912
Prospect Street	Grove to Atheneum St.	Trinidad	1898

Sheldon Street	Union St. to Taylor St.	California (Acme)	1912
Sheldon Street	Main St. to 77 feet west of Union St.	California (Atlas)	1911
Sheldon Street	From 77 feet west of Union St. to Union St.	Texaco	1911
Spruce Street	Asylum to Church St.	Trinidad	1900
State Street	Gutters, both sides Market to Front St.	Bermudez	1908
State Street	South side and track from end of Granite block west of Front St. to Connecticut Boulevard	Bermudez	1912
State Street	North side track and dummy from 220 feet east of Granite block to Connecticut Boulevard	Bermudez and California (Acme)	1912
State Street	North side, track and dummy from Granite block 220 feet easterly	California (Acme)	1912
State Street	North side from Granite block to Main St.	California (Atlas)	1909
Talcott Street	Gutters on both sides Market to Main St.	Trinidad	1898
Temple Street	Market to Main St.	Trinidad	1898
Trinity Street	East side and tracks Capitol Ave. to Bridge	Bermudez	1908
Trinity Street	West side, Capitol Ave. to Bridge	Trinidad	1897
Trumbull Street	Asylum St. to Main St.	Trinidad	1898
Village Street	Windsor St. north	Trinidad	1898
Village Street	City Park to Pleasant St.	Trinidad	1899
Windsor Avenue	Tracks, Albany Ave. to Canton St.	Bermudez	1907
Windsor Avenue	Tracks, Canton St. to Capen St.	California (Atlas)	1910
Windsor Avenue	Both sides Main St. to Capen St.	Trinidad	1899
Windsor Street	City Park to Pleasant St.	Trinidad	1898

NOTE:—When two asphalts are named they are used as a mixture, unless otherwise stated.

THE FOLLOWING SUMS HAVE BEEN EXPENDED FOR REPAIRS ON PAVED STREETS TO JANUARY 1, 1914

Street	Previous to 1903	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	Total
Albany Avenue	......	......	$ 7.19	......	$ 17.01	$ 198.06	$ 190.72	$ 200.41	$ 28.25	$ 110.67	$ 160.67	$ 245.50	$ 1158.08
Allyn Street	......	$ 30.37	......	$ 17.67	124.89	109.75	163.69	451.30	156.37	352.54	460.50	265.28	2132.36
Amer. & Cen. Rows	$ 435.23	360.00	973.98	50.02	412.44	2.98	413.24	......	......	......	......	......	2647.89
Ann Street	......	......	......	......	......	......	6.40	......	5.64	......	8.14	10.22	30.40
Asylum Street	......	358.92	1460.01	686.01	745.67	232.46	165.83	245.25	189.43	231.85	......	44.91	4360.34
Atheneum Street	......	......	......	......	......	......	11.47	15.45	5.91	88.23	148.71	145.54	415.31
Broad Street Bridge	......	......	......	......	......	......	......	......		17.52	20.18	12.25	49.95
Capitol Avenue	......	......	......	36.10	483.43	1668.31	1303.49	1343.15	1727.88	......	......	......	6562.36
Church Street	......	169.56	40.85	91.17	168.77	325.43	139.56	53.48	71.44	139.08	160.06	......	1359.40
Farmington Avenue	748.70	254.02	1351.28	879.91	1929.23	2810.71	909.28	3110.96	2180.38	3333.76	1928.94	......	19437.17
Ford Street	......	......	236.32	......	414.40	1.12	......	......	......	95.55	......	......	747.39
Gold Street	......	......	......	......	......	......	......	......	......	26.50	23.55	......	50.05
Grove Street	......	......	......	......	......	......	39.24	56.20	58.31	23.43	109.49	126.35	413.02
Hamilton St. Bridge	......	......	......	......	......	......	......	......	......	70.06	......	......	70.06
Haynes Street	......	93.16	......	......	......	......	......	......	20.13	......	142.84	36.16	292.29
High Street	......	......	98.66	28.37	418.45	515.60	309.02	1108.58	580.22	262.06	228.80	158.35	3708.11
Hopkins Street	......	......	243.77	......	216.60	272.37	768.46	390.62	694.15	522.98	392.37	204.85	3706.17
Kinsley Street	......	32.34	......	......	......	......	......	12.35	......	......	13.53	......	58.22
Lewis Street	......	......	......	......	......	......	......	......	......	8.89	24.73	......	33.62
Main Street	392.78	1809.57	1083.77	2414.36	3783.59	3672.51	6513.41	4168.23	2831.77	1899.11	958.50	602.03	30129.63
Market Street	298.83	113.67	363.12	92.93	80.47	828.89	288.90	261.93	232.01	129.15	515.45	270.88	3476.23
Morgan Street	......	57.47	......	......	35.59	......	8.80	7.35	8.56	74.03	......	......	191.80
Mulberry Street	......	......	......	28.22	......	25.69	51.07	13.68	......	29.93	39.24	68.24	256.07
Park Street	17.49	122.40	......	106.89	......	......	103.72	......	......	......	......	......	350.50
Pearl Street	968.05	10.97	165.84	......	......	41.38	......	......	2.77	......	20.07	51.82	1260.90
Pleasant Street	......	......	9.91	......	......	......	......	......	54.26	10.31	......	......	74.48
Pratt Street	16.20	2.79	......	8.61	4.64	12.14	93.44	71.75	55.67	42.12	76.56	193.41	577.34
Prospect Street	......	......	33.44	91.07	......	......	......	115.62	92.17	85.40	198.98	47.68	664.36
Spruce Street	3.19	......	......	......	......	......	......	4.27	4.10	30.15	45.94	113.95	201.60
State Street	1707.82	3006.65	41.78	1108.63	2771.30	5.96	74.78	......	......	......	......	56.80	8773.72
Talcott Street	......	......	......	......	12.25	......	......	......	......	......	21.78	......	34.03
Temple Street	......	......	2.90	......	......	......	......	......	7.90	......	......	34.61	45.41
Trinity Street	......	125.97	305.71	69.27	766.23	387.14	1564.86	267.81	190.82	205.71	479.32	366.37	4729.21
Trumbull Street	....	36.42	118.56	43.51	106.55	391.07	130.72	219.91	214.58	114.34	496.46	423.03	2295.15
Union Place	......	......	......	......	131.91	......	35.16	......	6.66	......	16.35	......	190.08
Village Street	......	......	......	......	......	......	......	......	......	7.83	59.40	38.69	105.92
Windsor Street	......	......	11.59	......	......	......	35.15	......	......	15.54	351.90	110.87	525.05
Windsor Avenue	29.85	44.84	134.77	94.74	518.42	764.31	563.29	1145.77	685.33	1115.76	1222.31	1067.41	7386.80
Totals	$4618.14	$6629.12	$6683.45	$5847.48	$13141.84	$12265.88	$13883.70	$13264.07	$10104.71	$9052.50	$8324.38	$4695.20	$108500.47

TABLE SHOWING THE COST PER YARD FOR REPAIRS TO SHEET ASPHALT PAVEMENT FOR EACH YEAR AFTER EXPIRATION OF GUARANTEE TO JANUARY 1, 1914

Street	Completed	Years guaranteed	6th year	7th year	8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	16th year	17th year
Albany Avenue	1900	5	$00.38	$.0438	$.0422	....	....	....	Partly resurfaced 1909			....	....	....
Allyn Street	1899	5	.0029	.0207	.0181	$.0271	$.0747	$.0239	$.0583	$.0762	$.0439	....	....	....
Ann Street	1898	5	....	....	....	....	.0055	....	.0048	None	.0069	$.0087	....	....
Asylum Street	1908	10	Guarantee expires 1918											
Atheneum Street	1896	5	....	....	....	....	....	....	.0205	.0277	.0106	.1580	$.2663	$.2606
Capitol Avenue	1900	5	.0338	.1165	.0910	.0940	.1207	....	All resurfaced					
Church Street	1897	5	.1211	.0292	.0651	.1206	.2325	.0997	Resurfaced 1909 and 1913					
Farmington Avenue	1899	5	.0410	.0899	.1309	.0424	.1449	.1016	.1553	Pavement extended 1910 and 1911				
Ford Street	1908	10	Guarantee expires 1918											
Gold Street	1898	5	....	....	....	....	....	....	....	.0181	.0161	None	....	....
Grove Street	1898	5	....	....	....	....	.0430	.0615	.0639	.0256	Pavement extended 1912			
High Street	1899	5	.0045	.0660	.0813	.0487	.1748	.0915	Partly resurfaced 1911					
Hopkins Street	1899	5	....	.0691	.0869	.2451	.1246	.2214	.1667	.1251	.0653	....	....	....
Kinsley Street	1898	5	....	....	....	....	....	.0912	None	.0130	None	....	....	....
Lewis Street	1900	5	....	....	....	....	....	.0081	.0228	None	....	....	....	....
Main Street	1896	5	.0026	.0321	.0192	.0429	.0672	.0652	.1157	.0740	.0503	Partly resurfaced 1910		
Market Street	1898	5	.0691	.0177	.0153	.1577	.0550	.0490	.0441	....	Partly resurfaced 1909			
Mulberry Street	1898	5	....	.0217	....	.0198	.0393	.0105	None	.0230	.0302	.0525	....	....
Pearl Street	1903	10	Guarantee expires 1913											
Pleasant Street	1898	5	.0098	....	....	....	....	....	.0537	.0102	None	None	....	....
Pratt Street	1899	5	.0060	.0032	.0084	.0650	.0499	.0387	.0292	.0532	.1345	....	....	....
Prospect Street	1898	5	.0186	.0505	....	....	....	.0641	.0511	.0473	Partly resurfaced 1912			
Spruce Street	1900	5	....	....	....	.0019	.0018	.0131	.0201	.0500	....	....	....	....
Talcott Street	1898	5	....	....	.0360	....	....	....	....	None	.0481	None	....	....
Temple Street	1898	5	.0027	....	....	....	....	....	.0075	None	None	.0329	....	....
Trinity Street	1897	5	.0181	.0440	.0100	.1103	.0557	....	.0385	.0275	Partly resurfaced 1908			
Trumbull Street	1898	5	.0222	.0081	.0199	.0732	.0245	.0412	.0402	.0214	.0929	.0791	....	....
Village Street	1899	5	....	....	....	....	....	....	.0061	.0308	.0200	....	....	....
Windsor Avenue	1899	5	.0048	.0362	.0386	.0285	.0579	.0346	.0563	.0617	.0539	....	....	....
Windsor Street	1898	5	.0050	....	....	....	.0151	....	....	.0067	.1019	.0478	....	....

[illegible] 13 or
TE
25

12

EIGHTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1915

EIGHTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

OF THE

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1915

THE BOND PRESS, INC.,
HARTFORD, CONN.

[illegible]

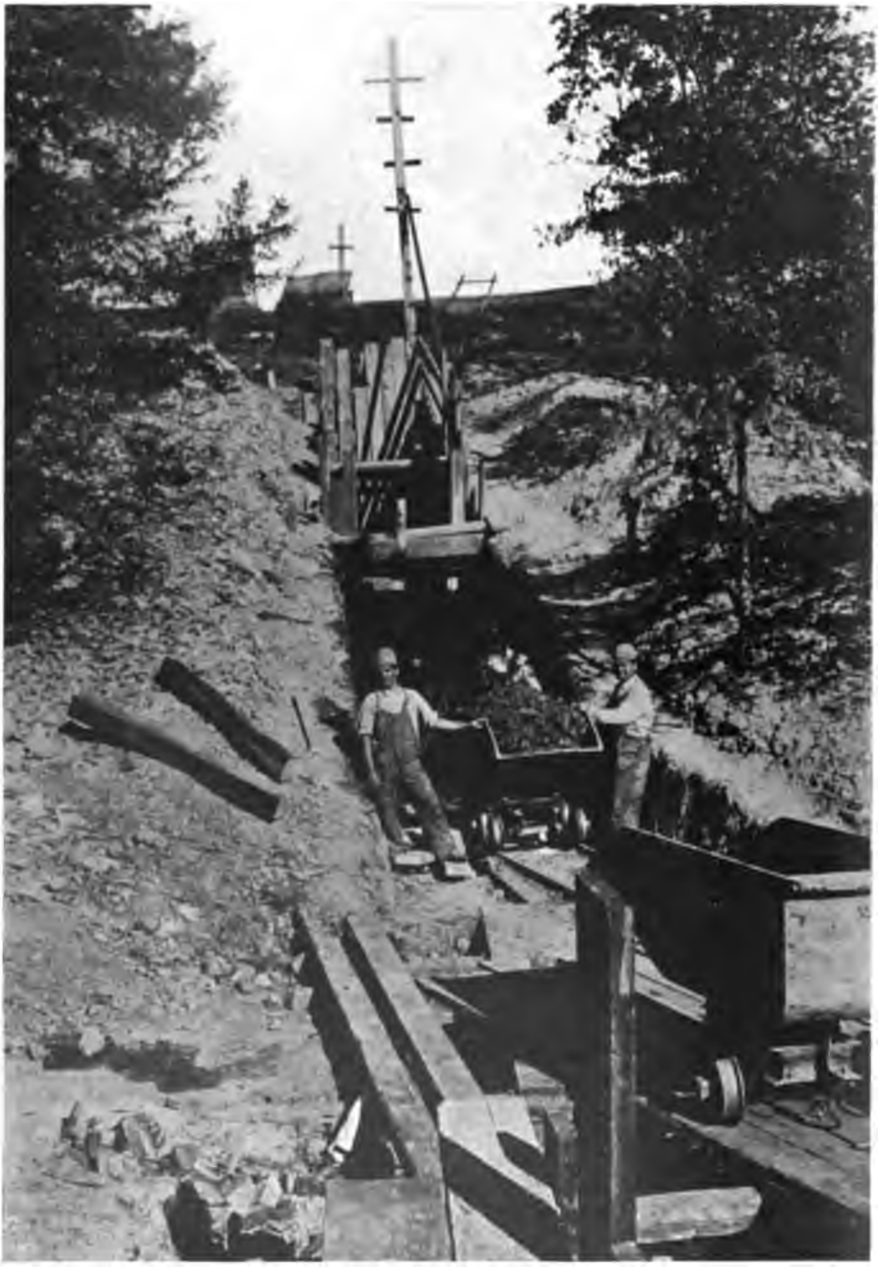
HARVARD UNIVERSITY
The Library of the Schools
of Landscape Architecture and City Planning

[illegible]

ORGANIZATION

ROSCOE N. CLARK, City Engineer.
ROBERT J. ROSS, Assistant City Engineer.
HARRY G. WHITMAN, Chemist.
WILLARD S. BREWER, Division Engineer.
HERBERT G. CLARK, Division Engineer.
H. IRVING SKILTON, Division Engineer.
JOHN P. MURPHY, Assistant Engineer.
ALDEN WELLS, Assistant Engineer.
F. PERRY CLOSE, Assistant Engineer.
JOHN F. DORAN, Assistant Engineer.

E. SELDEN GEER, JR.
GEORGE S. FRANCIS.
FLORENCE L. CHAPIN.
GEORGE ANGELO
PAUL P. KIMBALL.
PETER K. RASK.
THOMAS ROWLAND.
HAROLD R. WHITE.
CLEMENT M. BRODERICK.
AARON FIEN.
EDWARD L. DONAGHUE.
CHARLES W. COOKE.
ROBERT E. CROSS.
K. HILDING BEIJ.



TYPICAL SEWER CONSTRUCTION

West Heading of Overflow Tunnel — Homestead Avenue System

REPORT.

Hartford, Conn. August 4, 1915.

To his Honor the Mayor, and to the Honorable Court of Common Council of the City of Hartford, Connecticut.

Gentlemen:

I have the honor to submit the following report of the work of the Department of Engineering for the year ending March 31, 1915.

SEWER DIVISION.

Tables appended to this report give a list of all sewers constructed the past year, together with data concerning their construction and cost.

Of the total expenditure of $192,035.47, $123,573.77, or 64.5% was for the Maple Avenue System. while $60,490.00 or 31.4% was spent on the Homestead Avenue Intercepting Sewer, and only $7,971.68 or 4.1% was expended on miscellaneous sewers. The amount invested in sewers this year has been exceeded only once, that being in 1896 when the Park River Interceptor was under construction, $218,578.01 having been expended in that year. The same holds true of the total length of sewers built, 7.53 miles having been laid in 1896, and 6.61 miles the past year.

For construction purposes the Maple Avenue Sewer System was divided into six sections numbered A to F, inclusive, contracts for sections A, B and C being awarded in April, 1914, and for D, E and F on September 1 of the same year. Of these sections, A, B, C and E, which includes sewers in South Street, Campfield Avenue, Preston Street, Maple Avenue, Fairfield Avenue, Salem Street, Torwood Street, Griswold Street, Freeman Street, Linnmoore Street, White

Street, Fairview Avenue, Grandview Terrace, Chapman Street, Otis Street, Bushnell Street, Dartmouth Street, Clifford Street, and Kenneth Street are completed. These sewers are now in operation, many houses already having been connected to them.

The portion of this system remaining to be done lies in the district bounded by New Britain Avenue, Fairfield Avenue, White Street and Broad Street. It is expected that this will be finished by midsummer.

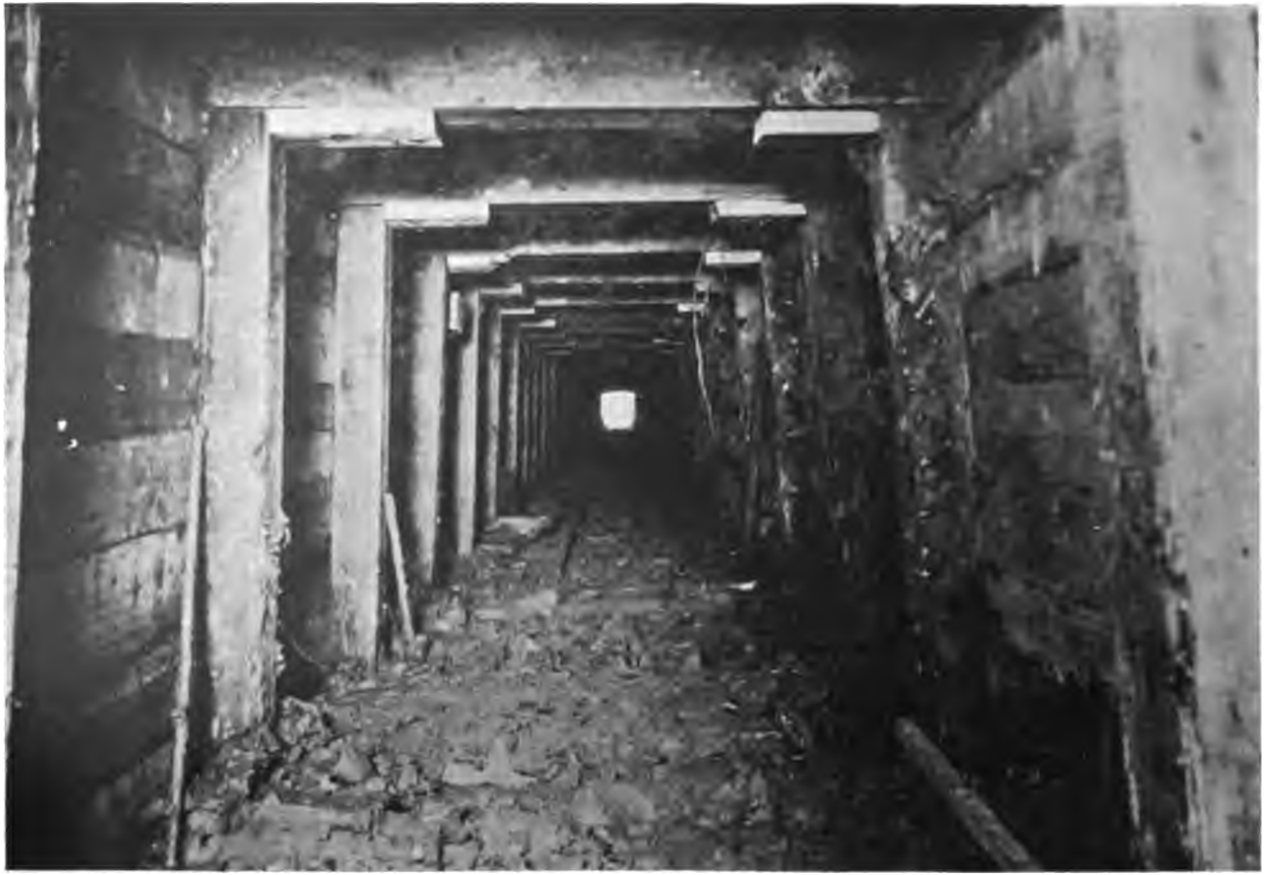
The extension of the Homestead Avenue Interceptor has been carried from Adams Street to a point in Granby Street about 1600 feet north of Albany Avenue and will reach its terminus at Uphill Street about July 1st. The stormwater overflow from Granby Street to the Park River has been completed, as has also the sewer in Westbourne Parkway extending to Blue Hills Avenue.

Work contemplated the coming season includes new sewers in Sisson Avenue south of Warrenton Avenue; Chester, Cromwell, George, Ansonia, Oliver, Roger, Mansfield and Winchester Streets; Broadview Terrace and Tower Avenue; also the rebuilding of the Canton Street Sewer, and the Trumbull Street Sewer from the Park River to Pearl Street.

There is also to be built during the summer a system of ditches to drain the low places of a portion of the South Meadows east of the Valley Branch Railroad.

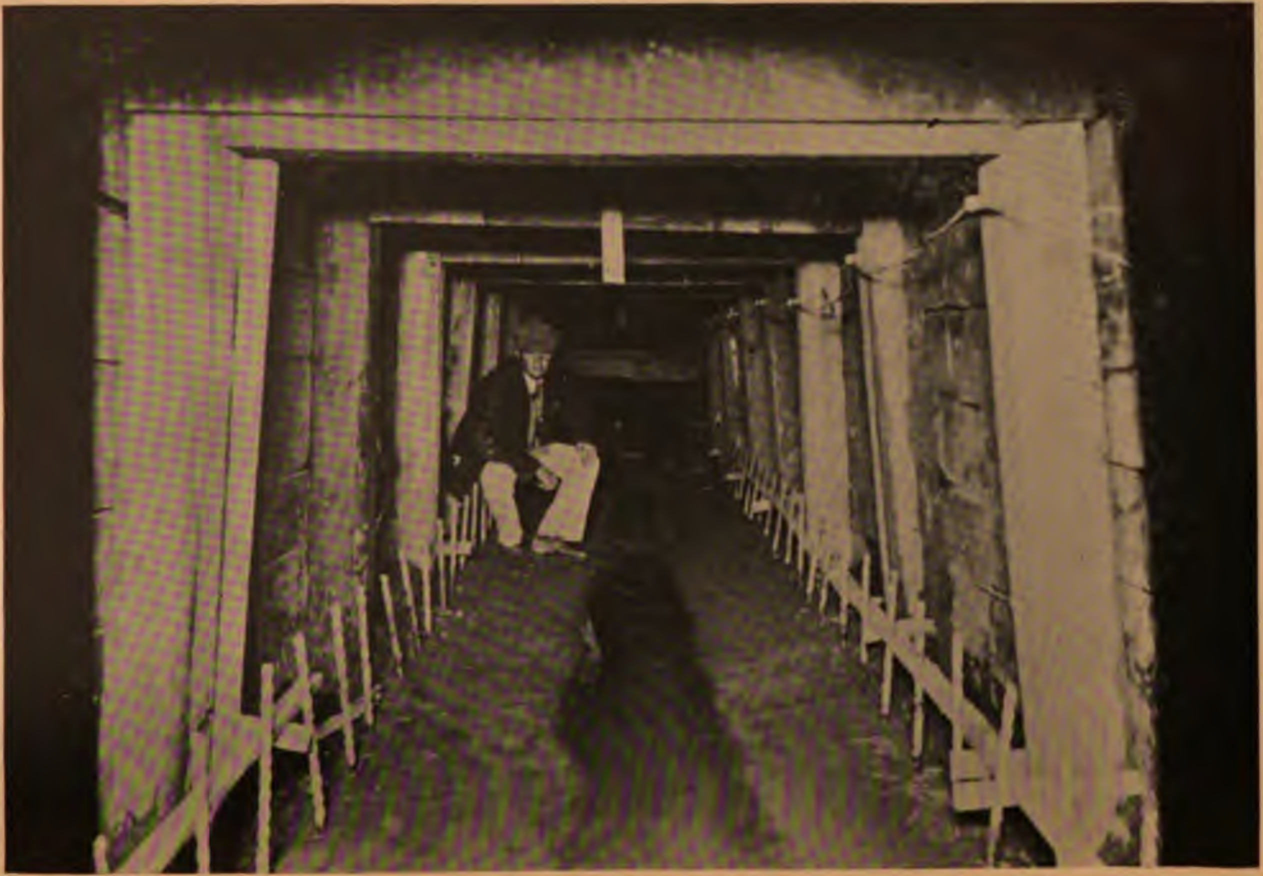
Two very important sewer projects which were defeated at the election in April should be again placed before the voters at the next City Meeting. I refer to the proposed stormwater relief sewer through South Street from Franklin Avenue to the South Meadows, and the enclosing of Gully Brook from Liberty Street to Westland Street.

The former project is made necessary by the near completion of the Maple Avenue Sewer System which will result in the discharging of large additional quantities of stormwater into the existing Franklin Avenue Sewer which is already overloaded in times of heavy rains. The entire district tributary to the new Maple Avenue System and to the southerly portion of the Franklin Avenue Sewer is rapidly building up,



TYPICAL SEWER CONSTRUCTION

This Tunnel on the Stormwater Overflow was Excavated and Timbered its Entire Length Before any Concrete was Placed
Homestead Avenue System



TYPICAL SEWER CONSTRUCTION

Showing Method of Timbering in Tunnel, also Concrete Invert with Projecting Reinforcing Steel to be Imbedded in Concrete of Sidewalls
Storm-water Overflow on Homestead Avenue System

and the flat lands lying between Franklin Avenue and Goodwin Park are sure to have drainage difficulties unless some relief such as the proposed conduit through South Street is provided.

The question of enclosing Gully Brook in a suitable conduit is a matter vitally affecting the welfare of a large part of the city's population. It has been a matter of public notice for many years, having gone through all the legal stages of complaint, petition, consideration by Health and Street Departments, layout and assessment by the Court of Common Council, appeals in both Court of Common Pleas and the Supreme Court, in all of which the city's contention has been sustained. Such being the case it would seem that the efforts and good faith of those whose business it has been to guard the city's interests in these various proceedings should be supported to the extent of voting the appropriation necessary to accomplish the work.

PAVING, TRACK WORK AND CURB CORNERS.

IMPROVED PAVEMENT.

The improved paving work consisted entirely of the laying of sheet asphalt, more yardage being laid in new work than has been laid in any one year since 1900, and more laid in resurfacing work with the exception of the year 1912. The city was enabled to lay a large amount of asphalt in resurfacing work due to the low cost per square yard, this cost, as well as that for new pavement being the lowest in the history of the paving work in this city.

In accordance with the amendment to the City Charter passed by the General Assembly in the session of 1913, the city was enabled to lay a mile of new pavement without petition of abutting property owners. Previous to this year the limit to this work has been one-half mile. Even with two miles laid each year, as authorized in the last Legislative Session, it will be several years before the paving work on those streets on which traffic conditions now demand a better surface, can be completed.

NEW PAVING WORK.

The one mile of sheet asphalt paving was laid the past season on the following streets:

Albany Avenue, East Street to Magnolia Street.
Market Street, Morgan Street to Pleasant Street.
Talcott Street, Market Street to Front Street.
Temple Street, Market Street to Front Street.
Windsor Street, Pleasant Street to Avon Street.

In connection with this work the past year, the city undertook the resetting of the curb and walks along the streets to be paved. This work was done by contract and assessed against the abutting property owners. Greater efficiency was gained in this way, the work was done more economically and quickly, and in such time and manner as to co-operate with the paving work being done on the street.

In connection with the paving of Temple Street the north curb was set back, at some places four feet, the line straightened and the grade raised, giving a much more pleasing appearance to the street, and still leaving ample sidewalk space. Market Street was widened four feet and the roadway made twenty-eight feet wide in lieu of the former width of twenty-four feet. This improvement will better accommodate the heavy volume of traffic to and from the freight yards.

The new improved pavement laid the past year amounted to 23,889.2 square yards, and the cost to city and property owners was $36,136.02.

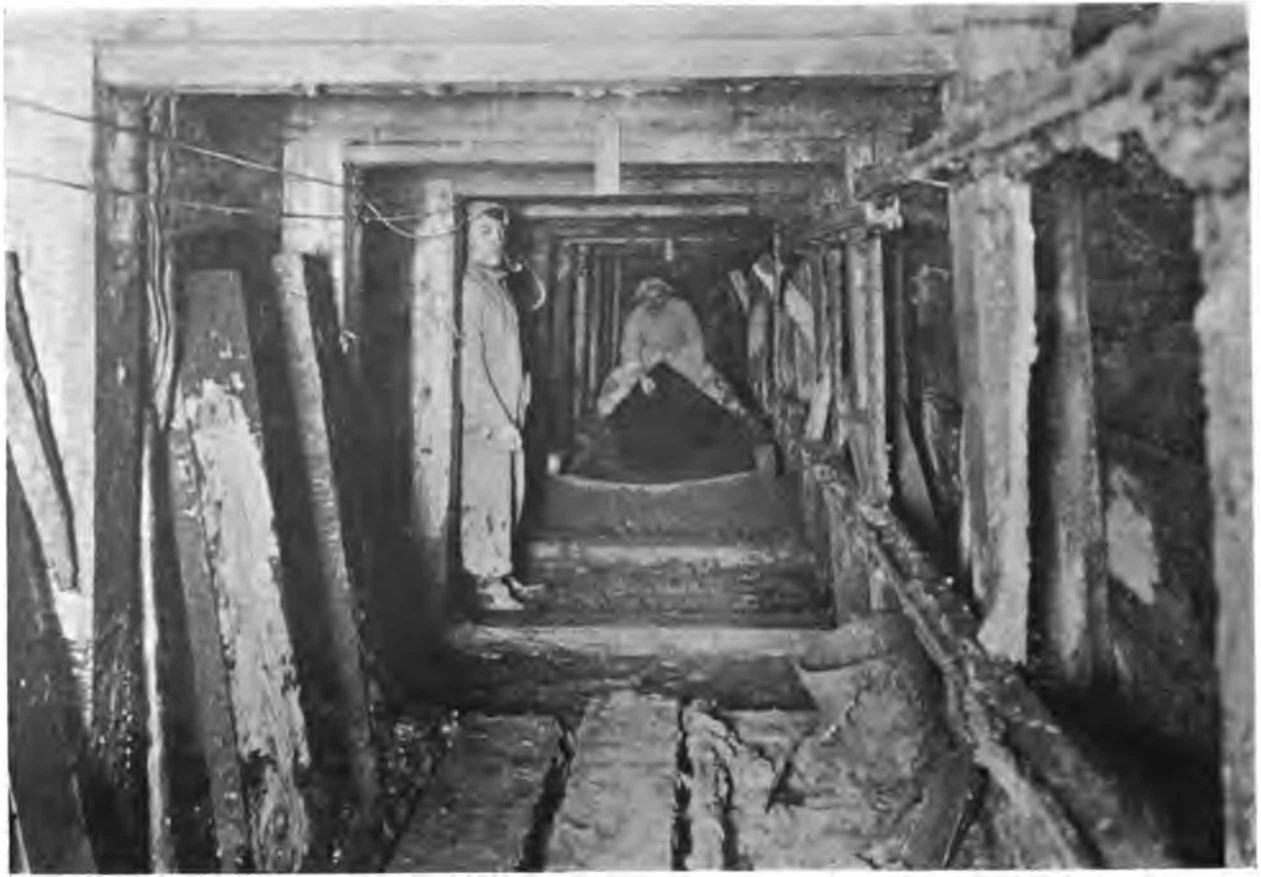
The assessment per front foot was small in comparison to other years, due to the low contract price of $1.69 per square yard of finished pavement.

In connection with the paving of Albany Avenue, the Connecticut Company paid for the laying of 4986.8 square yards. The city now has 12.46 miles of improved pavement, the total area being 298,891.72 square yards.

Tables giving various statistics on paving work in Hartford are appended to this report.

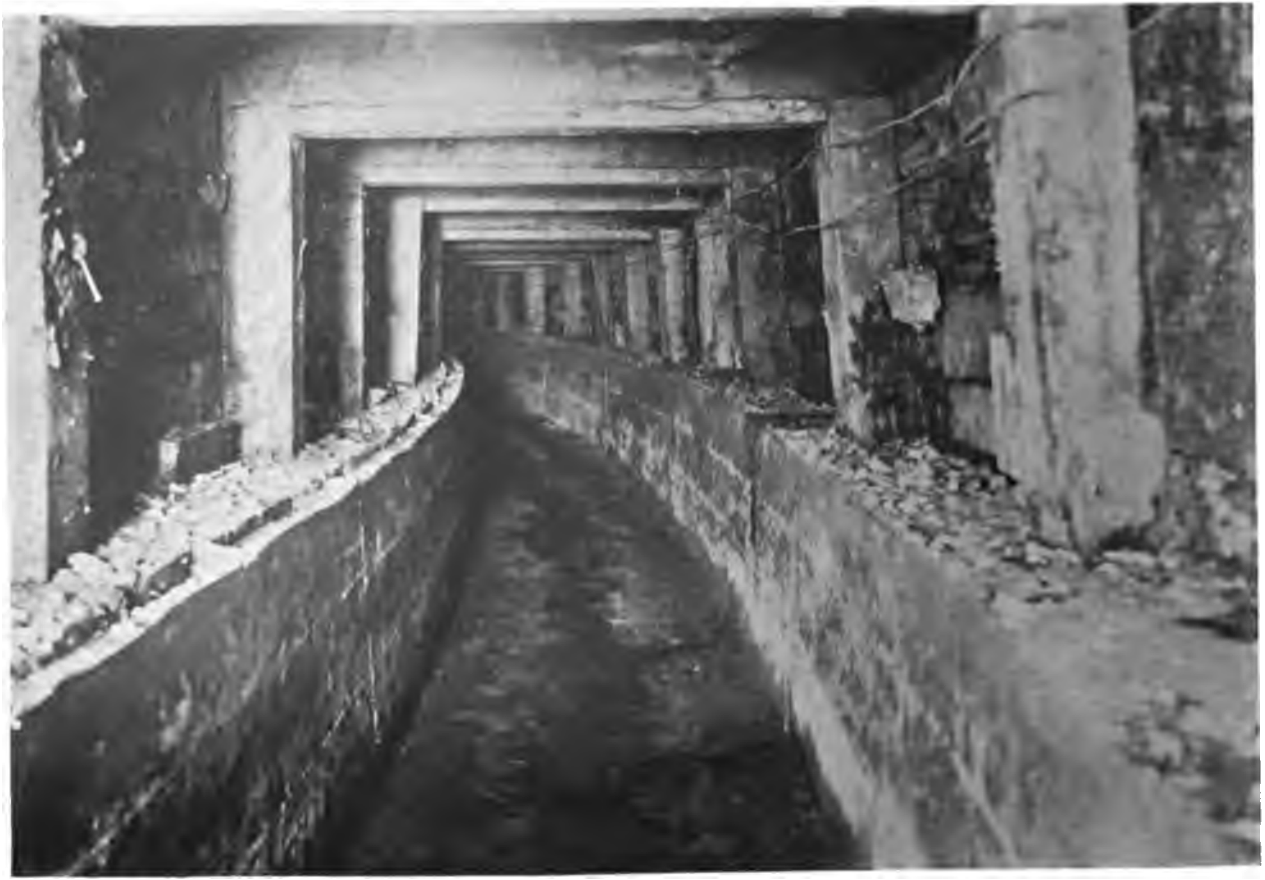
RESURFACING.

The following streets or portions of streets were resurfaced with sheet asphalt the past season:



TYPICAL SEWER CONSTRUCTION

Trowelling the Invert of Concrete Lined Tunnel — Homestead Avenue Intercepting Sewer



TYPICAL SEWER CONSTRUCTION

Concrete Invert and Sidewalls on Curve of 100 Feet Radius — Homestead Avenue Intercepting Sewer

Asylum Street, strip on north side from Garden Street west.
Broad Street, Bridge over Park River.
Hamilton Street, Bridge over Park River.
Main Street, east side, Wyllys Street to Charter Oak Ave.
Main Street, at intersection with Albany and Windsor Aves.
Market Street, east side from Temple Street to Morgan Street.
Trinity Street, west side, entire length.
Trumbull Street, Church Street to Pratt Street.
Windsor Avenue, west side, Main Street to Mather Street.

In connection with the work on Market Street, the Connecticut Company resurfaced the space between rails from State Street to Morgan Street.

The Main Street resurfacing at intersection of Windsor and Albany Avenues was undertaken in connection with the installation of new special work and tracks by the Connecticut Company. This new special work has greatly improved the traffic conditions at this busy square. By order of the Court of Common Council an Isle of Safety with ornamental lamp standard was erected here.

The resurfacing covered 16,872.5 square yards. The total cost to the city was $15,275.00. These figures do not include the yardage laid by the Connecticut Company on the various streets, principally on Main Street and Market Street.

PAVING REPAIRS.

All worn places which appear in the asphalt pavements before the guarantee expires (usually five years), are repaired by the company which laid the pavement, and at its expense. All repairs, either worn places or cuts, are restored under the supervision of this Department. In the case of cuts caused by new duct lines, enlarging mains, or sewer connections, the paving contractor is paid directly by the parties responsible for the cuts.

During the past year $2,797.29 was expended for repairs by the city on improved paved streets. This amount proportioned over the 275,002.52 square yards of such pavements which existed in the city at the beginning of the last fiscal year, gives one cent as the average cost per square yard for repairs. This also includes repairs made in granite block pavements.

PAVING PROPOSED FOR 1915.

The one mile of improved pavement will be laid the coming season on the following streets:

Wethersfield Avenue, Wyllys Street to Bond Street.
Village Street, Pleasant Street to Avon Street.
Trumbull Street, Pearl Street to Hicks Street.

Wethersfield Avenue and Village Street will be paved with sheet asphalt, and Trumbull Street with granite blocks.

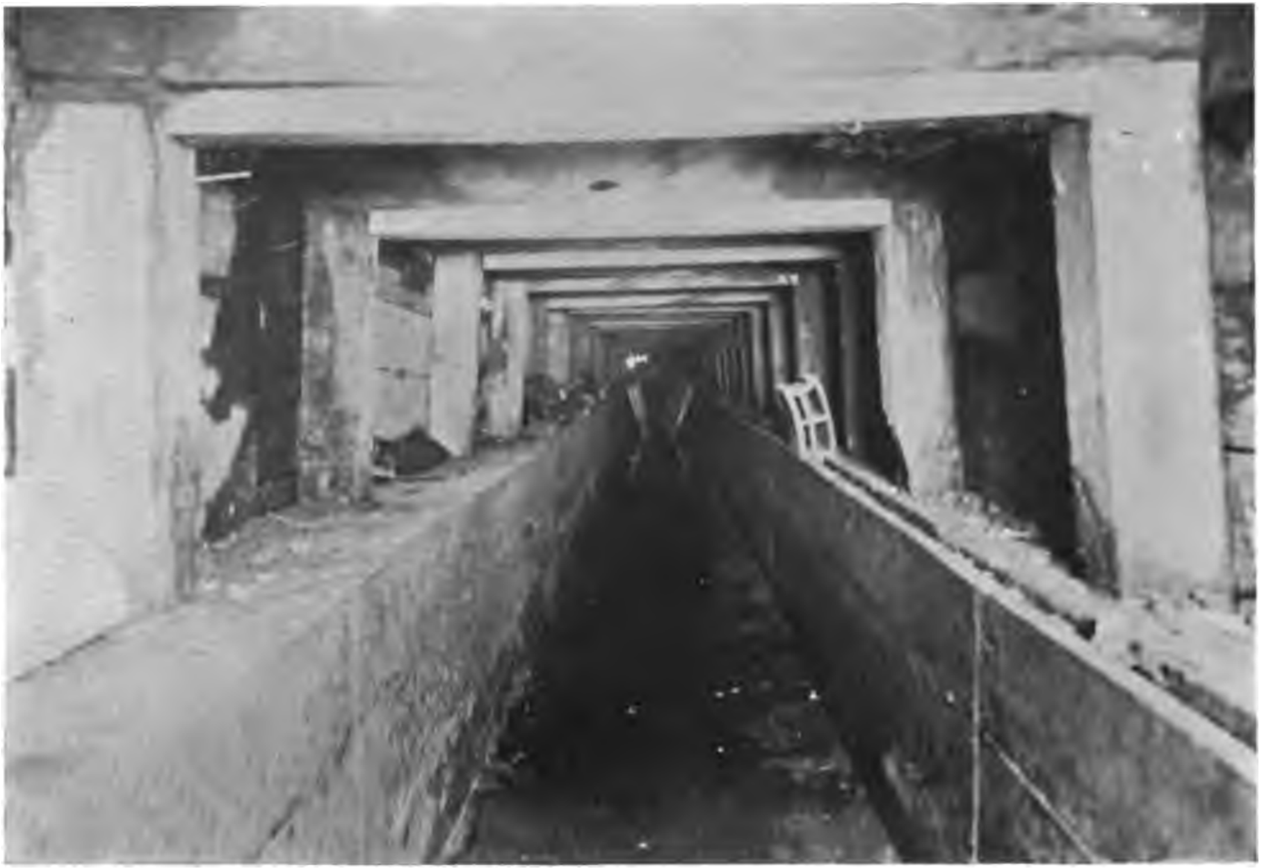
There is but one section of resurfacing work planned for this coming season,—Trumbull Street from Pearl Street to Asylum Street. Here the present worn, uneven and unsightly asphalt block surface will be removed and replaced by a sheet asphalt surface.

CORNERS CUT BACK TO LONGER RADII.

The practice of substituting long radius curves at curb intersections for those of six-foot radius originally laid has been continued in connection with the laying of improved pavement. Nearly all of the corners of Main Street, at its intersections with cross streets, have now been treated in this manner, allowing vehicular traffic to pass with ease and safety.

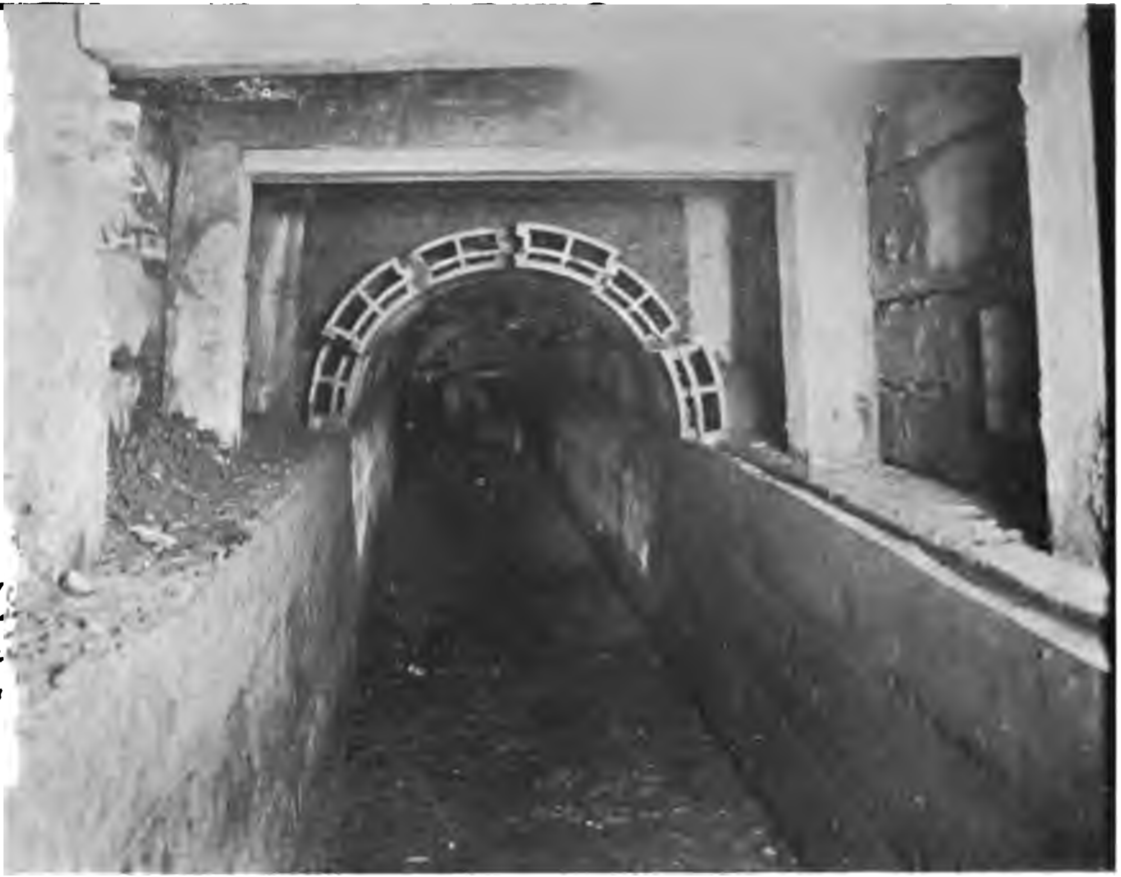
The past season forty-seven corners were cut back to longer radii, a greater number than in the past six or eight years combined. These corners were chiefly those in the streets paved with sheet asphalt or where resurfacing was undertaken. Of special interest was the southwest corner of Pearl and Main Streets. Here traffic conditions were of the worst, an automobile and trolley car not being able to pass this point at the same time without danger of collision. Since the improvement was made this danger is removed. This corner required more detailed study to secure satisfactory results, since the sidewalk space on Pearl Street is limited.

Of interest also was the intersection of Main Street, Albany Avenue and Windsor Avenue at the southeasterly end of Tunnel Park. This corner was set back about twenty feet, and the stone watering-trough removed and replaced by a more convenient iron trough in a new location. This square was



TYPICAL SEWER CONSTRUCTION

Invert and Sidewalls Before Placing Arch—Tunnel Section of Homestead Avenue Intercepting Sewer



TYPICAL SEWER CONSTRUCTION

Section of Completed Tunnel, 36"x45" — Homestead Avenue Intercepting Sewer further improved by the cutting back of the east corner of Main Street and Windsor Avenue, the east corner of Main Street and Ann Street, and the corner of High Street and Ann Street.

Extra land was required for curb corner improvements and was given by the respective property owners at the following locations: Albany Avenue at west corner of Vine Street. Maple Avenue at south corner of Barnard Street, Hopkins Street at the west corner of Asylum Street, and High Street at the corner of Ann Street.

It is planned for the coming season to cut back the corners on Wethersfield Avenue and on Trumbull Street where new paving is to be laid; also at several other locations where special traffic conditions require such treatment.

TRACK WORK.

The track work undertaken by the Connecticut Company within the city limits is carried out under the supervision of this department. All layouts of special track work are presented to this office for approval and profiles furnished the Connecticut Company before construction work is started.

New tracks were laid on Albany Avenue from Center Street to Vine Street, and track from East Street to Center Street was resurfaced.

New tracks were laid the entire length of Retreat Avenue.

New special track work was installed at the intersection of Main Street with Albany Avenue and Windsor Avenue, and new tracks laid across the Tunnel on Albany Avenue.

Work of repairing the track on Asylum Street from Farmington Avenue to Woodland Street was partially completed.

TRACK WORK PROPOSED FOR 1915.

Track work planned for the coming season is as follows:

Tracks will be overhauled, brought to a new grade and partly renewed on Wethersfield Avenue from Wyllys Street to

Bond Street, and new special work will be installed at the Car Barns.

Tracks will be renewed and brought from a side to a center location on Fairfield Avenue from New Britain Avenue to Maple Avenue.

A new single track will be installed on Prospect Avenue from Farmington Avenue to Park Street.

New tracks will be laid on Main Street from Pearl Street to the South Green.

Other work has been contemplated but not definitely decided upon.

TRAFFIC GUIDES.

Two isles of safety, or traffic guides were built in 1914, one at the intersection of Main Street with Albany Avenue and Windsor Avenue, and one at the intersection of Albany Avenue, East Street and Belden Street. As the volume of traffic increases, these traffic guides, built at some of our larger squares or intersections, become of aid in the proper handling of the traffic, and the lessening of danger to both vehicles and pedestrians.

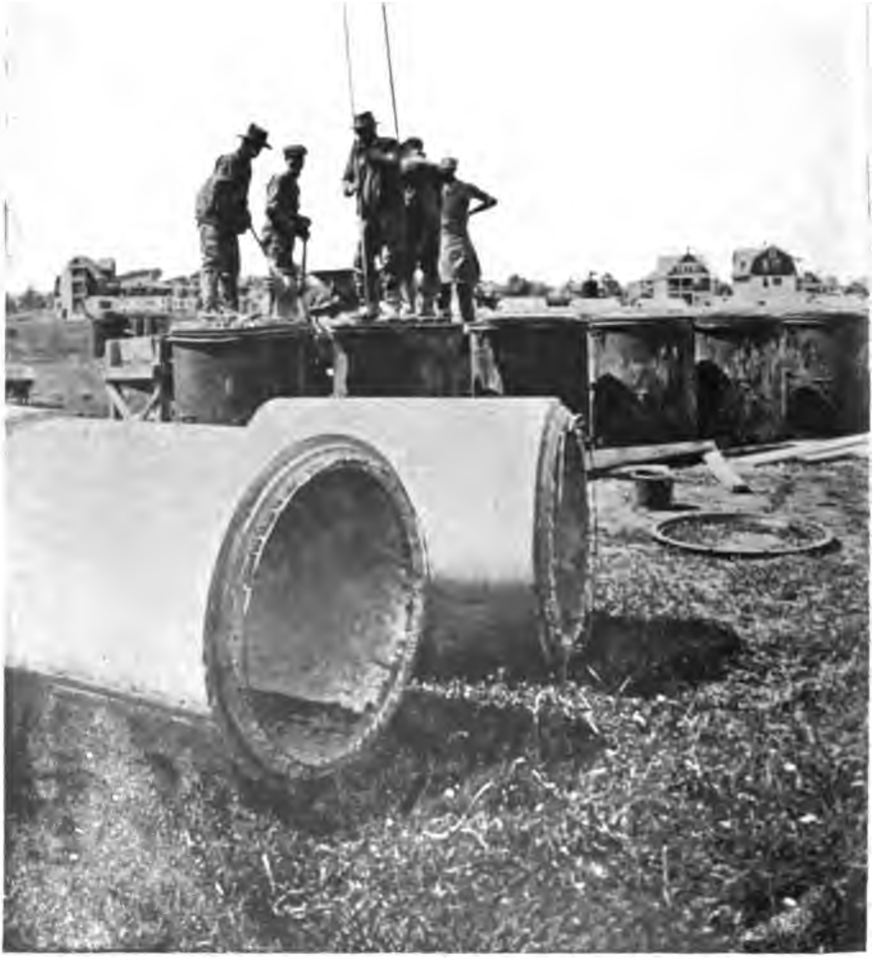
A traffic guide will be built the coming season at Broad Street and Farmington Avenue.

PROSPECT AVENUE GUTTERS.

Concrete gutters on a foundation of broken stone were constructed on Prospect Avenue from the northerly end of the granite block gutters laid in 1909, north to Albany Avenue, a distance of about 700 feet. A combined concrete radius curb and gutter was laid at the east corner of Albany Avenue.

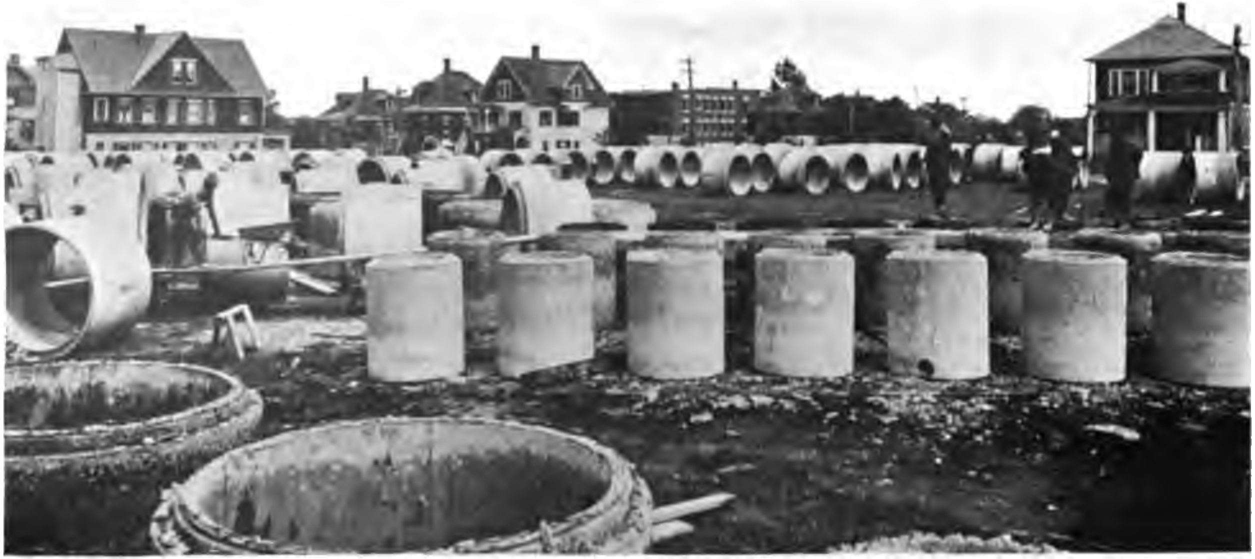
The street was graded and macadamized just before cold weather set in. Prospect Avenue now has a macadam roadway from Albany Avenue to Park Street.

The granite curbing between Sargeant and Ashley Streets along the east boundary of Sigourney Park was relaid on a broken stone foundation with tile underdrain. In connection with this work a four-foot concrete walk was laid on cinder foundation with tile underdrain.



TYPICAL SEWER CONSTRUCTION

Manufacturing Reinforced Concrete Pipe—Maple Avenue Sewer System



MAPLE AVENUE SEWER SYSTEM

Reinforced Concrete Pipe Curing in Yard

UNDERGROUND CONDUITS.

The problem of assigning suitable locations beneath the surfaces of the public streets for the structures of the various public service corporations is yearly becoming more complex. In order to facilitate this work the preparation of a set of underground maps has been started which will untimately extend to all streets within the city. For obvious reasons this work is now being confined to the downtown or business section. These maps are drawn to a scale sufficiently large to enable the positions of all underground structures to be definitely shown.

STATE HIGHWAY IMPROVEMENTS WITHIN CITY LIMITS.

The care and maintenance of a few of our outlying streets, mainly trunk highways leading to other towns, is assumed by the State Highway Department, and permanent improvements thereon up to this time have been made largely at the expense of the State.

The following streets were improved the past season under the direction of the State Highway Commissioner:

Albany Avenue—amesite paving from Baltimore Street to Bloomfield Avenue, and brick pavement from Bloomfield Avenue west to the City Line.

Bloomfield Avenue—A concrete pavement laid from Albany Avenue northerly to the City Line.

In each case the space between the rails was also paved and paid for by the Connecticut Company.

Maple Avenue will be improved this season with the laying of a concrete pavement from Campfield Avenue to the City Line.

SURVEY AND STREET DIVISION.

During the past year the usual variety of work was handled by this division. From April until December the activities of the Street Department require a large portion of the time, as practically all of the engineering necessary in connection with new and repair work done by the city's men employed on the street work is assigned to this division. Lines and grades are given for all street grading, for the installation of catch basins, location of pole lines, for sidewalk and curb construction, and similar work. Many matters referred by the Board of Street Commissioners for examination and report requiring work both in the field and in the office are also handled by this division.

Many calls for work of an engineering nature are received from the Board of Park Commissioners in connection with new construction and changes which are constantly taking place in the several parks.

Throughout the year surveys, plans and profiles are made for the layout and acceptance of new streets and for changes in street, building and veranda lines and grades in existing streets, such work being done on petitions from individuals or on recommendations of the Board of Street Commissioners or the Commission on the City Plan.

MERESTONES.

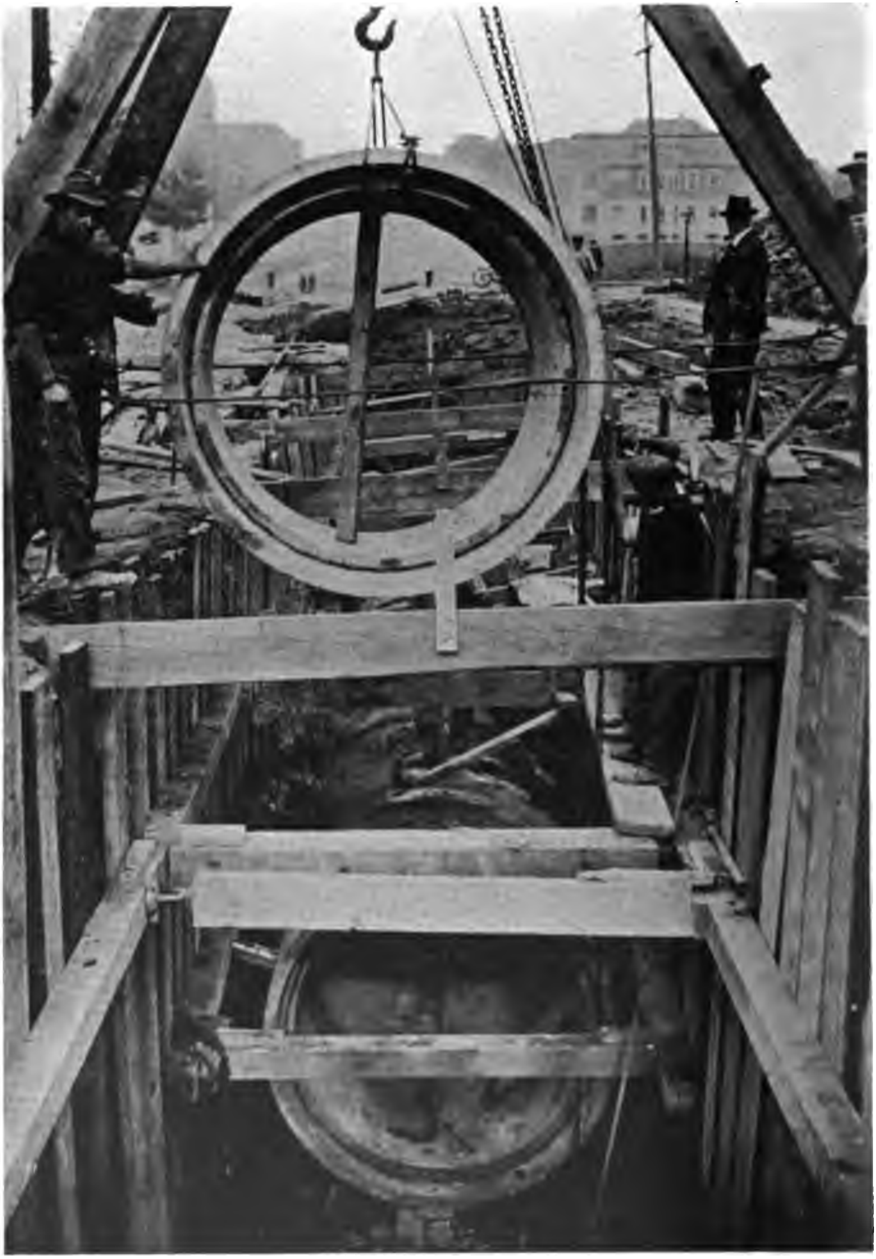
Each year additional merestones are set to define the street lines on newly accepted streets and on existing streets as needed. These stones of reinforced concrete are manufactured at the City Yard on Sheldon Street by employees of this department who afterward set them in position at the designated points.

Seventy-five merestones were made last season, fifty of which were set at various street intersections. A drawing of the standard city merestone is appended to this report.

NEW STREETS.

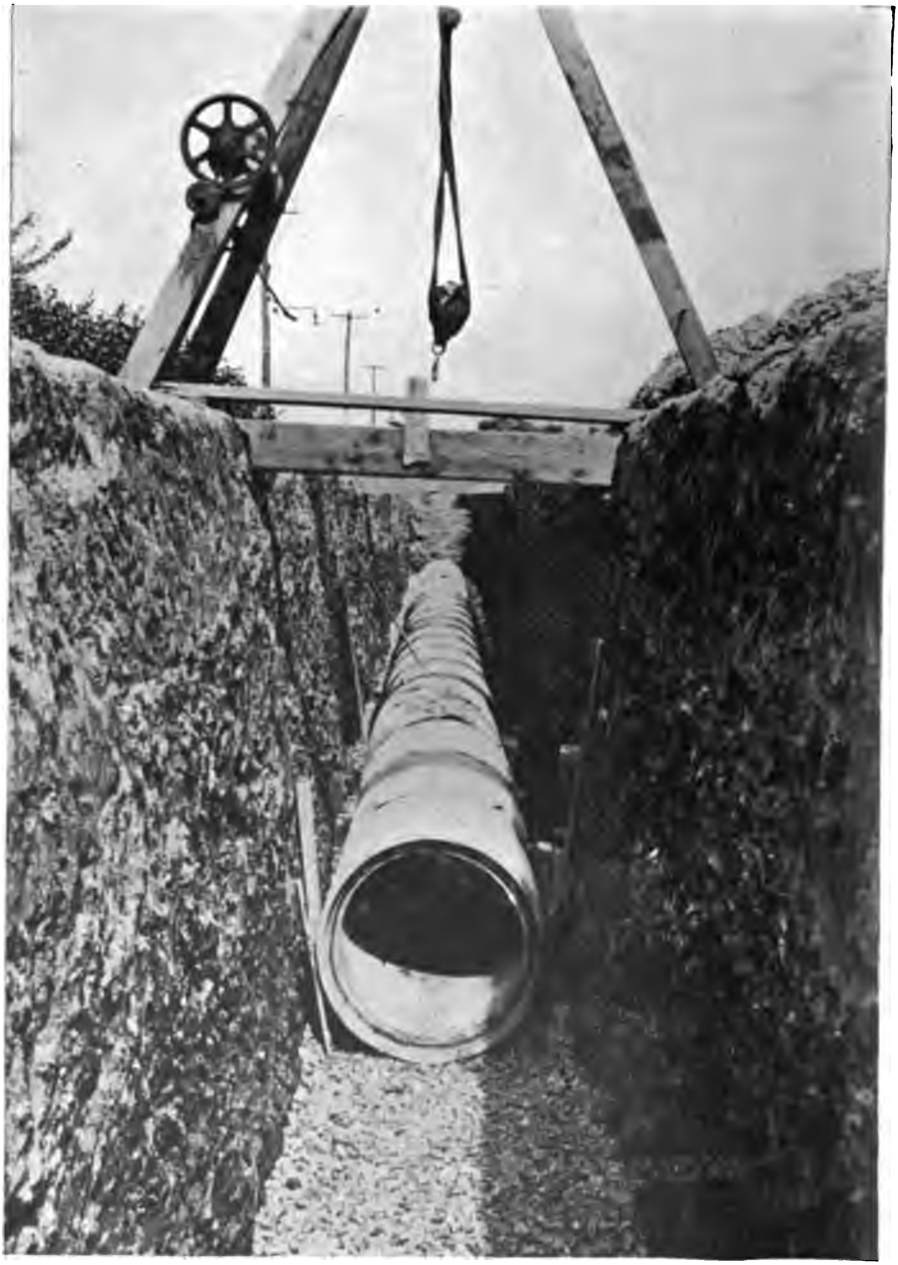
Layouts were prepared for the acceptance of the following new highways:

Broad Street from Asylum Street to Collins Street.
Brown Street from George Street to Maple Avenue.
Broadview Terrace from Chandler Street to Dart Street.
Branford Street from Blue Hills Avenue to Coventry Street.
Chester Street from Franklin Avenue to George Street.
Chapman Street from Maple Avenue to Fairview Avenue.
Colton Street from Woodstock Street to Branford Street.
Cromwell Street from Franklin Avenue to George Street.



TYPICAL SEWER CONSTRUCTION

Laying 66-inch Reinforced Concrete Pipe
Maple Avenue Sewer System



TYPICAL SEWER CONSTRUCTION

33-inch Reinforced Concrete Pipe in Trench Before Backfilling—Maple Avenue Sewer System

Chandler Street from Broadview Terrace to Dart Street.
Cheshire Street from White Street to Ansonia Street.
Cornell Street from Bloomfield Town Line to Burnham Street.
Dart Street from New Britain Avenue to Chandler Street.
Douglas Street from George Street to Maple Avenue.
Euclid Street from Blue Hills Avenue to Palm Street.
Fairview Avenue from White Street to Linnmoore Street.
Gilman Street from George Street to Maple Avenue.
Kelsey Street from White Street to Linnmoore Street.
Linnmoore Street from Fairfield Avenue to Mountain Street.
Lisbon Street from Sumner Street to Broad Street Extension.
Montowese Street from Franklin Avenue to George Street.
Monroe Street from White Street to Linnmoore Street.
Morningside Street West from Blue Hills Avenue to Palm Street.
Oliver Street from Humphrey Street to Hillside Avenue.
Palm Street from Morningside Street West to Manchester Street.
Roger Street from White Street to Linnmoore Street.
Regent Street from Warrenton Avenue to the Boulevard.
Tredeau Street from Franklin Avenue to George Street.
Victoria Road from Franklin Avenue to George Street.
Water Street from Morgan Street northerly to Pumping Station.
Woodstock Street from Blue Hills Avenue to Coventry Street.

NEW STREET AND BUILDING LINES.

Layouts were prepared for new street, building and veranda lines to supersede existing lines on the following streets or portions of same: Broad Street, Cheshire Street, Center Street, Mather Street, Morgan Street, Maple Avenue, Monroe Street and Preston Street.

NEW GRADES.

New grades were established to supersede existing grades on the following streets or portions of the same: Burnham Street, Hillside Avenue, Loomis Street, Newfield Avenue, Sanford Street and Warren Street.

SIDEWALK AND CURB LINES.

Layouts were prepared for the establishment of sidewalk and curb lines on the following streets or portions of the same: Affleck Street, Asylum Street, Adams Street, Baltimore Street, Broadview Terrace, Cheshire Street, Fairfield Avenue,

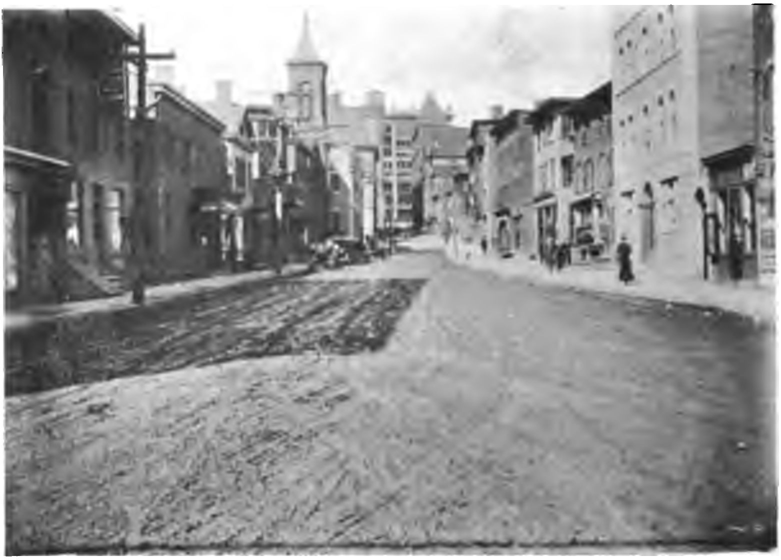
Frankfort Street, Girard Avenue, Grandview Terrace, Jefferson Street, Jewell Street, Judson Street, Kent Street, Lincoln Street, Madison Street, Monroe Street, Montowese Street, Milford Street, New Britain Avenue, Park Street, Prospect Avenue, Sanford Street, Scarborough Street, Sterling Street, Thomaston Street, Tredeau Street, Victoria Road and Woodland Street.

OFFICE DIVISION.

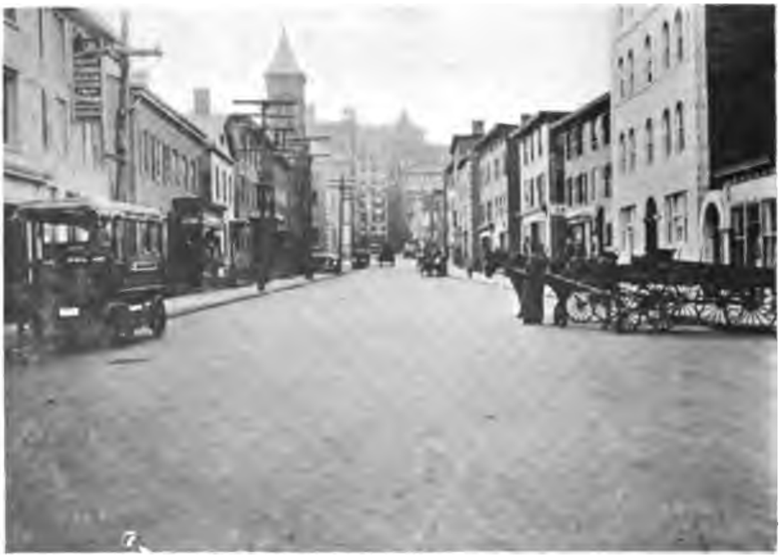
From year to year more people are availing themselves of the opportunity which this department affords for free information on numberless matters in connection with the city and the city's affairs. This is a condition which is encouraged, as the efficiency of the department is in a large measure increased by the services we are enabled to render in this manner. At the present time there are on an average at least fifty people daily who personally apply at this office for information.

Mention has been made in former reports of the set of so-called "property maps" of the city. This set consists of one hundred and thirty-six separate plans or maps covering as many sections of the city's area. These maps are in constant use not only by this office but by other city departments and by the public in general. In connection with the work of making out assessments for public improvements alone they are worth the time and effort which it is found necessary to devote to their up-keep. These maps are kept constantly up to date in respect to realty ownership, new streets, real estate developments, and any changes affecting old streets. Once a year, usually in the winter, buildings constructed since the previous year are plotted on them. These maps indicate the ownership, size and location of every parcel of real estate in the city,—curb, street, building and veranda lines with their date of acceptance by the Council,—the width of every street, all buildings which have a taxable valuation, all house numbers issued by this department, and all deed frontages, as well as frontages which have been determined by this department from surveys.

Two thousand one hundred and ten deeds were recorded during the past year at the Town Clerk's Office, and in accord-



TEMPLE STREET WEST FROM FRONT STREET
Showing Street Before Paving



TEMPLE STREET WEST FROM FRONT STREET
Showing New Sheet Asphalt Pavement

ance with the system followed for a number of years, an abstract of each deed was made by a member of this department, the necessary changes made on the property map, and the abstracts typed and filed under the respective property numbers which were marked on the maps. Each October copies of these maps are made for the Board of Assessors. These copies show every new house to date and the ownership of all properties on October 1st. A comparison of this set of maps with the books of the Assessors is made each February, which furnishes a valuable check on all property ownership.

In connection with the real estate transfers, fourteen maps showing new real estate development plans were filed with the Town Clerk during the last year and these were redrawn in the map book at the Halls of Record by this department. Several maps accompanying deeds were also thus redrawn.

STREET SPRINKLING ASSESSMENT.

As the city grows and additional streets are macadamized, the mileage of those sprinkled or oiled steadily increases. In 1899 the length of the sprinkled streets was but 44 miles, while the combined length of those watered or oiled last season was 98 miles, or considerably more than twice that of fifteen years before. The assessment for this sprinkling is made up in this office and is no small task. For this assessment the exact frontages of every property is determined, its location given, together with the name and address of the owner, the rate per front foot, and the amount of the individual bills. Last season's assessment covered twice ninety-eight, or one hundred and ninety-six miles of frontage, comprising 11,000 separate ownerships, an increase on the previous year of six miles of sprinkled streets and about 1000 names of owners.

BUILDING AND VERANDA LINES.

Whenever a building permit is issued by the Building Inspector, a notice in the form of an index card is filed by that official, with this department. On this card are indicated the date of the building permit, the name of the person to whom issued, the location of the proposed building and its general character. Upon the receipt of this card, figures defining the building and veranda lines in front of the property are added and it is then turned over to the field-party in charge of this work, who proceeds to indicate on the premises by means of stakes driven in the ground, the building and veranda lines.

During the late summer and early fall all buildings erected during the preceding twelve months are located and measured, and plotted on the section maps.

During the year five hundred and twenty-three building lines were marked on the ground, and one thousand and twelve separate buildings located and plotted.

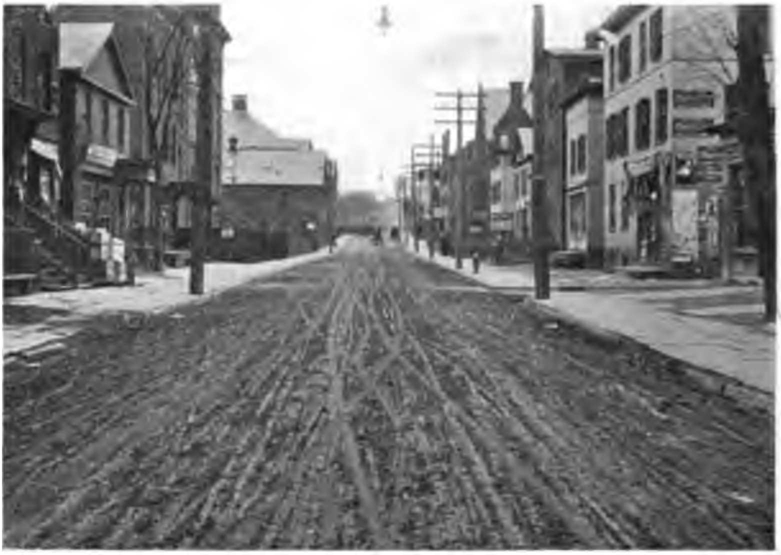
CHEMICAL AND TESTING DIVISION.

The testing laboratory work for the year has been carried on in its usual manner. In past years it has been customary to give, in the annual report of this department, a detailed description of some special part of the testing work, covering to some extent its technical methods. At this time it seems that a brief outline of the work done and the work that might be done in the city chemical and testing laboratory would be of interest.

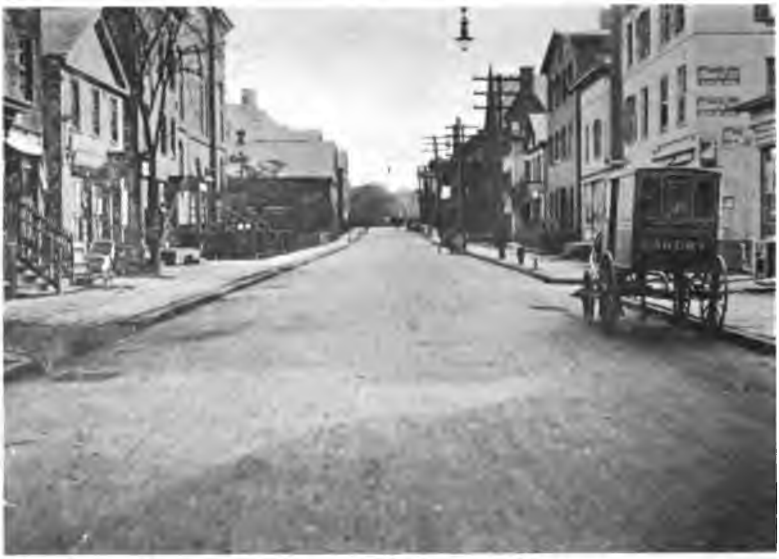
The first testing laboratories to govern the purchase of supplies were those originated by the United States government, which were found to be of immense value. Soon afterward the largest railroad systems, which buy enormous quantities of supplies of every description, instituted chemical and physical testing laboratories. The growth and usefulness of these were soon demonstrated, and now municipalities and private corporations of every character have their own chemists and laboratories.

The laboratory of this city could and should have its field of usefulness greatly extended, not at once, but by gradual improvements, as the work now carried on is extremely heavy at some seasons of the year for one person to perform.

The gas furnished to the city by a private corporation could by ordinance be made of a standard candle power for light and of a standard number of British Thermal Units per cubic foot of gas for heating purposes. These standards could be maintained by occasional tests in the city laboratory.



MARKET STREET SOUTH FROM MARSH COURT
Showing Street Before Paving



MARKET STREET SOUTH FROM MARSH COURT
Showing New Sheet Asphalt Pavement

Thus consumers would be assured of getting what they were paying for. This is being done in many cities at the present time.

Tests could be made of numerous supplies purchased by the city, such as inks, to see that they are of a permanent character, soaps, disinfectants, papers, fertilizers, and so on, almost without limit.

The magnitude and importance of the municipal chemical and testing laboratory in its present standing may be well explained by a brief resume of the work done during the past year, which has been the busiest season since the establishment of this laboratory. The testing for the engineering and street departments comprises the testing of cements used in all classes of concrete construction; the testing of road oils suitable for dust prevention and as surface binders; the testing of lead arsenate for spraying trees; the testing and grading of sands to see that they are adaptable for concrete use; the grading of crushed stone for concrete; the testing of fluxing oils for asphalts; the testing of asphalts submitted to the city when bids are received; the testing and continuous control of all asphalt paving mixtures laid in Hartford pavements, which is without question of the greatest importance; the testing of many miscellaneous samples such as preservative coatings, paints, oils, sewer pipe joint fillers, and many other items too numerous to mention.

This laboratory also tests for percentage of rubber and strength, all hose bought by the Hartford Fire Department. Automobile oils are also tested for the Fire Department.

The coal supplied to all the public buildings in Hartford aggregating several thousand tons of anthracite and bituminous is tested previous to its delivery to those buildings, and must conform to a standard specification adopted by the city. Many times coal has been of such a character that delivery has been refused until a different supply of higher quality has been obtained by the dealer.

The value of these tests made for the various city departments is great. It has been proven in many laboratories, both city and private corporations that large amounts are saved, due to the high standard in the quality of the supplies secured. The saving to the city in maintaining its own laboratory just for the control of the asphalt paving alone, is considerable. The cost of that part by outside consultation would cost more than the entire maintenance of the chemical laboratory, including the salary of the chemist; and the numerous other tests mentioned above would still have to be made. It can readily be seen, therefore, that a modern, up-to-date laboratory is indispensable to the municipality.

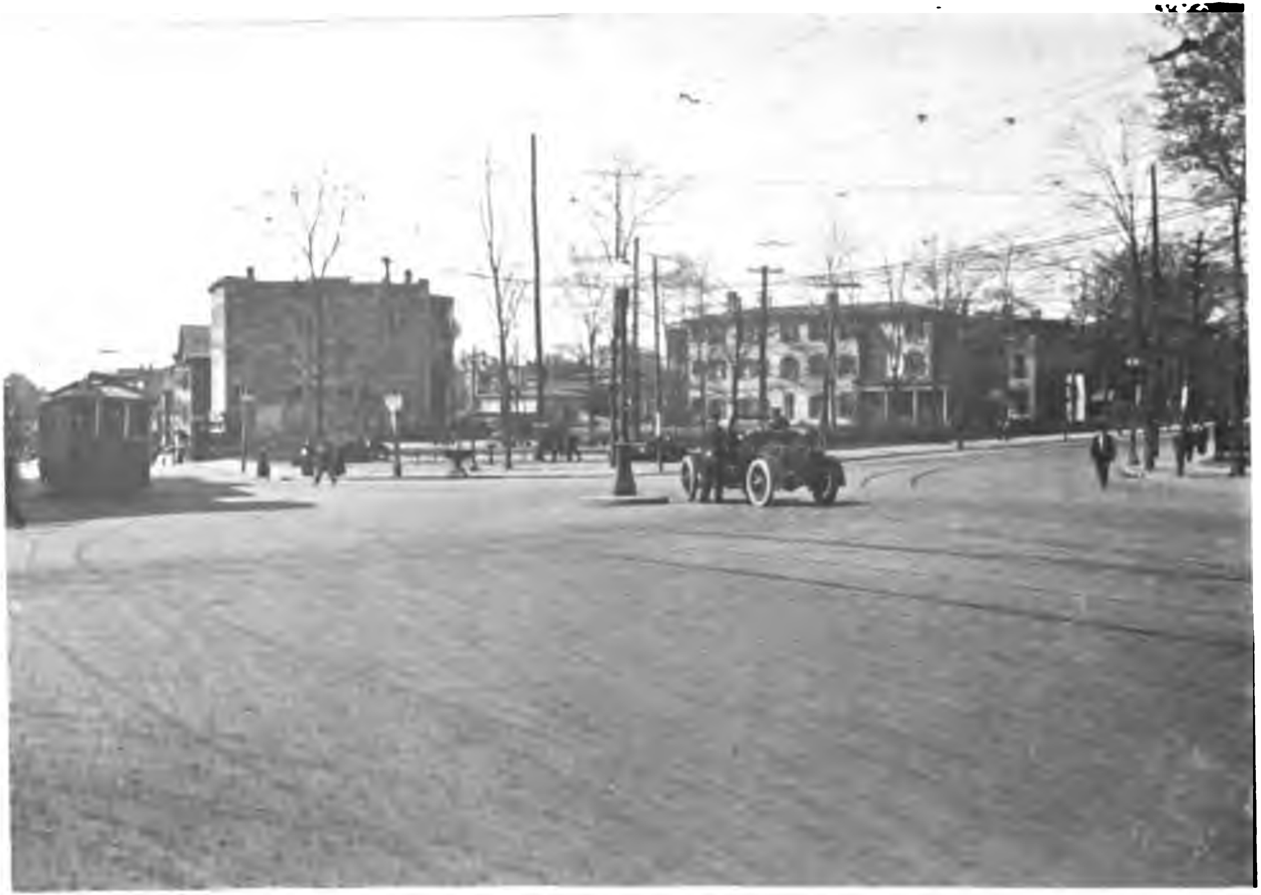
A table showing the value of raw materials and materials entering into the finished products in the various public works of the city during the year 1914, follows:

Asphalts, oils, sand, stone, cements, as materials used in the construction of asphalt and other improved pavements—Value of the finished product,	$83,800.00
Cements, stone, sand, bituminous compounds for joint fillers, etc., as materials of sewer construction—Value of completed sewers,	160,000.00
Coal for all the City Departments,	27,000.00
Road oils, purchased to the amount of	19,100.00
Fire Hose, purchased to the amount of	5,000.00
Automobile engine oil for Fire Department,	300.00
Arsenate of lead for tree spraying, used by Street Department,	300.00
	$295,500.00

DRAIN LAYERS.

During the past year licenses for the laying of private drains were issued to thirty-nine drain layers, in accordance with the city ordinance and with the rules and regulations of the Board of Street Commissioners.

A total of six hundred and fifty-two permits were issued to these various drain layers for laying new drains or repairing existing drains. Of this number, four hundred and twenty-four were for new house connections (an increase of sixty-three over the number issued the preceding year) and sixty-six were issued for the repairing or relaying of existing house drains. The public service corporations which are placing their wires in underground conduits took out eighty permits to drain manholes. Eight permits were issued to the Connecticut



TUNNEL SQUARE AND PARK

Shows Isle of Safety with Ornamental Light Pole and New Drinking Fountain for Horses

Company to connect track drains with the city catch basins or directly with the sewers. To the Board of Water Commissioners were issued seventy-four permits, sixty-six being for hydrant drains and nine for blow-offs.

A total of 6156 permits have been issued since this ordinance went into effect in May, 1913, an average of 513 permits a year for the last twelve years.

The oversight which this department maintains in all operations in connection with the laying of these private drains has materially raised the standard of the work done by the drain layers. This inspection insures the property owner of a satisfactory drain and saves the city much trouble and expense in sewer repairs. Whenever the drain work is inspected, sketches and notes are made giving the depth of the connection below the street surface or curb level, an exact location at the main sewer or curb line, and at the building which the drain serves. At the same time notes are taken indicating the positions of all conduits and pipes which may be encountered in the operation of laying the drain. This information in regard to the position of underground structures is plotted in the underground maps and made use of when assigning new locations for new pipe lines, especially on some of the older streets of which no maps exist which show the position of the sewers or gas and water mains.

All necessary data regarding each drain laid or repaired is written on a card which is filed in a card index maintained for this purpose.

PHOTOGRAPHY.

A branch of our work which is growing in importance is that of making photographs in connection with the work carried out by this and other city departments. As a record of methods of construction and conditions before and after improvements, views properly taken are of great importance. For evidence in suits in which the city is the defendant, photographs taken at the time of or immediately after accidents are often of great aid to the city's legal department.

Photographs are frequently used in reporting to the Board of Street Commissioners or other similar bodies, when a verbal description even if helped out by a map might not be made perfectly clear.

Commercial photographers, on account of not fully appreciating the engineering side of the cases when pictures are taken, may not bring out the points in question as prominently as desired.

In past years when we hired the necessary picture work done it was difficult at times o get a photographer to do this work at short notice, as was often necessary, and most photographers did not look with favor upon the prospect of descending a shaft and entering a wet tunnel with an expensive outfit as is frequently necessary in sewer work.

The difference in cost between these pictures taken by the department and the cost if done through professional photographers is considerable, since by doing our own work it narrows down to a mere cost of materials and the time of the man entrusted with this duty. Arrangements are made to take care of the regular work of this man when he is called upon to make pictures.

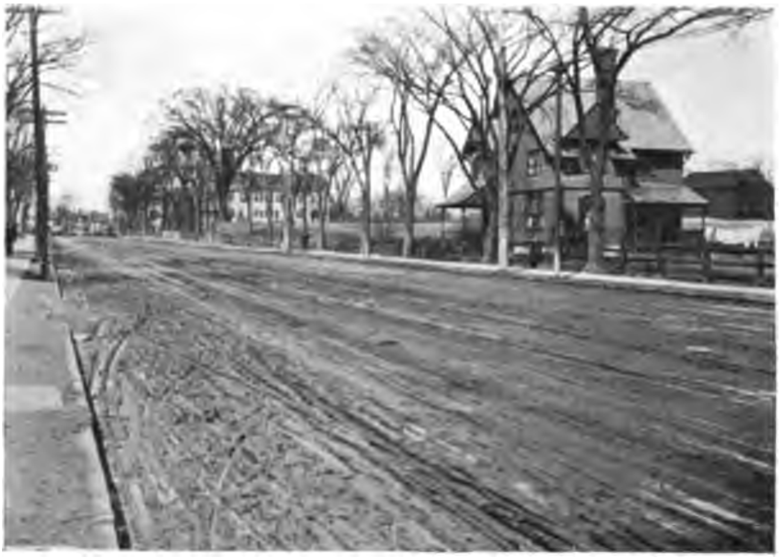
Many large corporations are featuring this method for the purpose of showing the different steps in building and manufacturing work and to show the progress of the same, and they find as we have that these pictures properly filed make permanent records of immense value.

Thus this branch of our work has grown naturally from an ever increasing demand for pictures when and as desired.

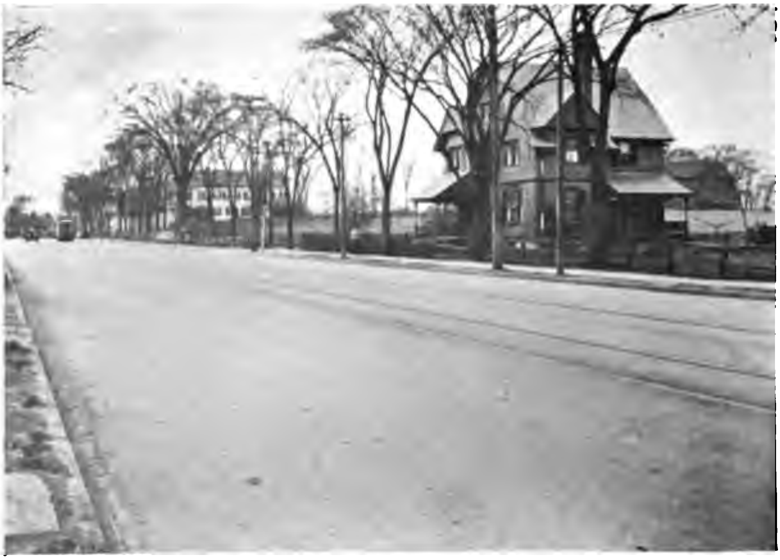
With the increased facilities which it is expected that the printing and developing room in the new Municipal Building will afford, we will be enabled to take care of this branch of our work much easier than at present.

CONCRETE CURB AND SIDEWALK.

Each succeeding year sees a relatively larger amount of curb and sidewalk constructed of concrete in proportion to the amount constructed of granite and bluestone. Two



ALBANY AVENUE WEST FROM BEDFORD STREET
Showing Avenue Before Paving



ALBANY AVENUE WEST FROM BEDFORD STREET
Showing New Sheet Asphalt Pavement.

factors of prime importance in the successful construction of this concrete work are a desire on the part of the builder to do good work and rigid inspection by the proper city authorities.

Under existing requirements the property holder is expected to make private arrangements, with whichever contractor he wishes, for the construction of the curb and sidewalk in front of his property. If conditions arise, either through imperfect work or as a result of accident during construction, wherein actual responsibility attaches to the contractor, legal liability on his part would be difficult, if not impossible to prove.

I am convinced, therefore, that in the interest of the city, and perhaps to a greater degree in that of the property holder who pays the bills, an ordinance should be adopted which will provide for better control by the proper municipal authorities over those who engage in the business of constructing curbs and walks. Such control could be obtained by a system of licensing in much the same way as those who engage in the business of laying and repairing house-drains are now licensed.

A form for such an ordinance with the necessary regulations and specifications has been recommended to the Board of Street Commissioners for their consideration.

ELECTRIC SIGNS.

By an amendment to the City Charter passed by the General Assembly in the session of 1913, your honorable court was given authority to provide by ordinance for certain encroachments over street lines in the form of advertising signs illuminated by electric light, marquises, and ornamental projections over buildings.

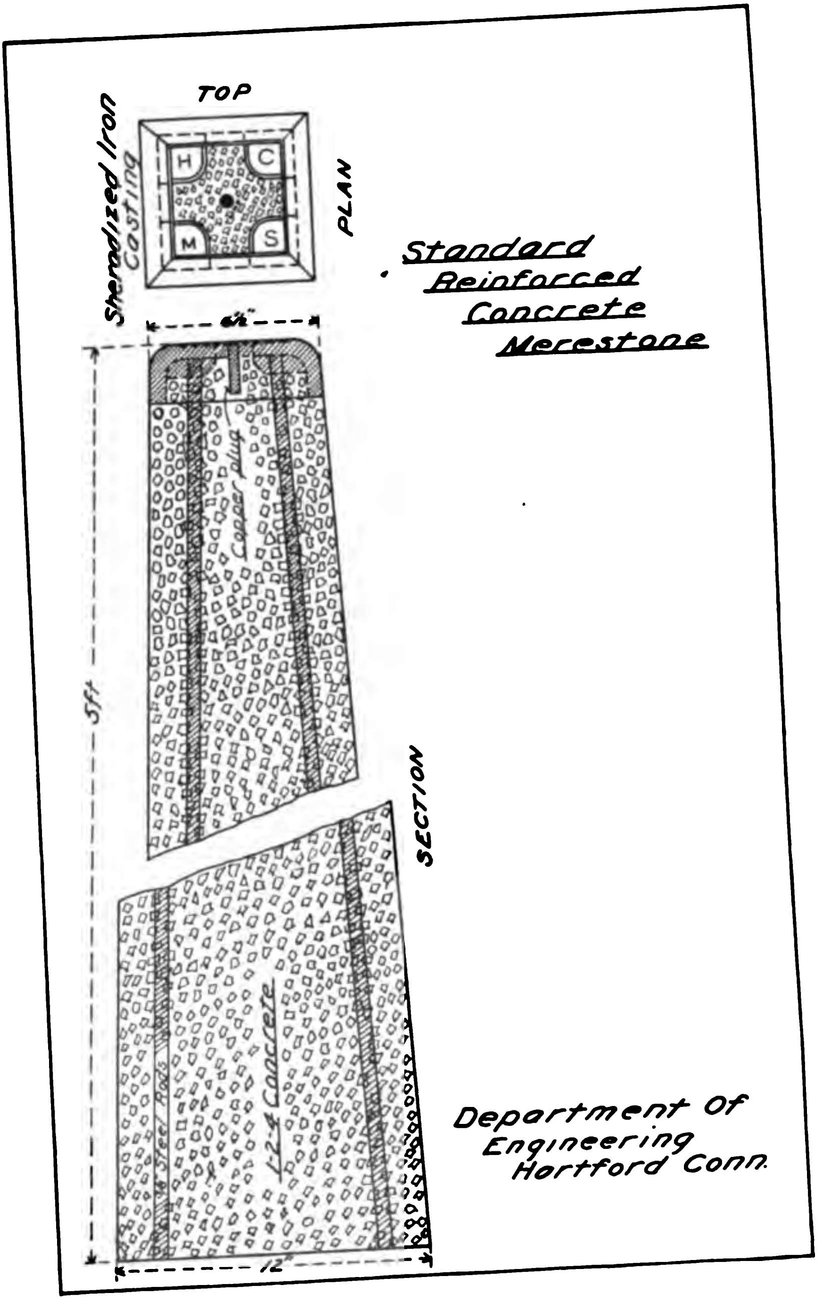
The City Engineer and the Superintendent of Streets, co-operating, have prepared a draft of such an ordinance which will be presented for your consideration in the near future.

I repeat at this time a recommendation made in former reports that the work of protecting the low-lying lands along the Connecticut River from damage by flooding in freshet periods, be continued as soon as the city's finances will permit, by the construction of a dyke along Commerce Street from State Street to the Park River.

In conclusion I take pleasure in testifying to the cordial and mutually helpful relations existing between this department and the several other departments, boards and officials, and to the loyalty and industry with which my co-workers in the department meet the duties imposed upon them.

Respectfully submitted,

ROSCOE N. CLARK,
City Engineer.



DETAIL OF STREET LINE MARKER

SEWER TABLE FOR YEAR ENDING MARCH 31, 1915.

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's No.	House Connect's Length	Number Manholes	Total Cost	Paid for by City	Assessment on Property	Paid for by Private Parties
Barker Street	Franklin to Wethersfield Ave.	Berardini Silvestri	15	Tile	535.8	22	330	5	$1433.48		$1433.48	
			10	Tile	220.0							
Brook Street	Mather St. southerly	Louis Rogers	10	Tile	139.9	1	15	1	210.00			$210.00
			15	Tile	18.8							
Hillside Avenue	Ward Pl. to Wilson St.	Berardini Silvestri	12	Tile	143.6	6	90	3	579.83		579.83	
			10	Tile	114.8							
Humphrey Street	White to Linnmoore St.	O'Neil Brothers	12	Tile	239.4							
			10	Tile	246.3	0	0	2	900.00			900.00
Julius Street	Mountford to King St.	Berardini Silvestri	8	Tile	277.8	5	75	2	350.71			350.71
			18	Tile	510.5							
Monroe Street	New Britain Ave. to Ansonia St.	Louis Rogers	15	Tile	289.3	30	450	5	2779.13		2779.13	
			12	Tile	190.9							
Nelson Street	Martin to Barbour St.	Louis Rogers	10	Tile	229.4	1	15	2	360.00			360.00
Sterling Street	End of 1910 sewer, southerly		12	Tile	110.6							
	Homestead Ave. to 770′ south		10	Tile	224.6	14	210	2				
	of Albany Ave.	George Di Berardino	12	Tile	285.4				1358.53			1358.53
Homestead Ave. Intercepting Sewer System:			10	Tile	285.0	22	330	2				
Private lands, overflow	Granby St. to Park River	Chas. H. Slocomb & Co.	45x									
			52½	Concrete	969.2	0	0	1				
			36	Tile block	567.6							
Westbourne Parkway	Granby St. to Blue Hills Ave.	Chas. H. Slocomb & Co.	30	Tile block	391.6	0	0	6	20000.00		18730.36	1269.64
			27	Tile block	260.3				490.00		458.89	31.11
			18	Tile	46.6							Damages for right of way
Homestead Avenue	West of Adams to Albany Ave.	Chas. H. Slocomb & Co.	42	Tile block	1560.0							
Westbourne Parkway	Albany Ave. to Granby St.	Chas. H. Slocomb & Co.	36-45	Con.&T.bl'ck	1276.0	0	0	7	40000.00	37460.72	2539.28	
Granby Street	Westbourne Parkway northerly	Chas. H. Slocomb & Co.	36	Tile block	300.0							

SEWER TABLE FOR YEAR ENDING MARCH 31, 1915 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Paid for by City	Assessment on Property	Paid for by Private Parties
						No.	Length					
Maple Avenue Sewer System—Section "A"			36	Brick	36.2							
South Street	Franklin to Campfield Ave.	O'Neil Brothers	66	R. Con. Pipe	742.4	58	870	5				
			57	R. Con. Pipe	864.6							
			63	R. Con. Pipe	586.6							
Campfield Avenue	South to Preston St.	O'Neil Brothers	63	R. Con. Pipe	1020.8				48946.40	10963.99	37982.41	....
			57	R. Con. Pipe	485.2	46	690	6				
Preston Street	Campfield to Maple Ave.	O'Neil Brothers	57	R. Con. Pipe	735.1	21	815	3				
Section "B":												
South Street	Campfield to Maple Ave.	O'Neil Brothers	33	R. Con. Pipe	1924.3	43	645	5	8420.00	1886.08	6533.92	....
Section "C":			20	Tile	941.2							
Fairfield Avenue	Bet. Maple Ave. and Roxbury	The W. T. Ryan Cons. Co.	18	Tile	320.0	104	2080	14	....	....	....	....
			15	Tile	2063.8							
			12	Tile	677.5							
Freeman Street	Maple to Fairfield Ave.	The W. T. Ryan Cons. Co.	24	Tile	814.4	32	480	5	....	....	....	....
			20	Tile	380.6							
Griswold Street	Maple Ave. to Torwood St.	The W. T. Ryan Cons. Co.	10	Tile	331.8							
			8	Tile	101.1	11	165	3				
			24	Tile	907.2				33226.82	7442.80	25784.02	....
Maple Avenue	South to 600′ south of Salem St.	The W. T. Ryan Cons. Co.	20	Tile	300.0	32	480	7				
			12	Tile	300.6	32	480	7				
			10	Tile	297.6							
Salem Street	Maple to Fairfield Ave.	The W. T. Ryan Cons. Co.	12	Tile	160.5							
			8	Tile	169.2	8	45	2				
Torwood Street	Salem to Freeman St.	The W. T. Ryan Cons. Co.	12	Tile	398.8							
			10	Tile	287.4	14	210	3				
Section "D"												
Maple Avenue	Between White and Otis Sts.	Antonio Lambo	30	Concrete	450.7							
			36	Concrete	560.8	24	480	8				
Private lands	Maple Ave. to Broad St.	Antonio Lambo	51	Concrete	135.0	0	0	0	8147.46	1825.03	6322.43	.....

SEWER TABLE FOR YEAR ENDING MARCH 31, 1915 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's No.	House Connect's Length	Number Manholes	Total Cost	Paid for by City	Assessment on Property	Paid for by Private Parties
Section "E":												
Bushnell Street	Maple to Campfield Ave.	The W. T. Ryan Cons. Co.	10	Tile	304.8	8	121	2				
Chapman Street	Maple to Fairview Ave.	The W. T. Ryan Cons. Co.	10	Tile	751.4	21	316	2				
Clifford Street	Maple Ave. to Broad St.	The W. T. Ryan Cons. Co.	15	Tile	325.2							
			10	Tile	309.8	20	300	3				
Dartmouth Street	Maple Ave. to Broad St.	The W. T. Ryan Cons. Co.	12	Tile	260.9							
			10	Tile	199.6	13	195	3				
Fairview Avenue	White to Linnmoore St.	The W. T. Ryan Cons. Co.	12	Tile	225.6							
			10	Tile	229.0	15	282	2				
Grandview Terrace	Linnmoore to White St.	The W. T. Ryan Cons. Co.	12	Tile	224.7							
			10	Tile	243.7	12	420	2				
Kenneth Street	Maple Ave. to Broad St.	The W. T. Ryan Cons. Co.	15	Tile	420.0							
			10	Tile	370.4	26	390	3				
Linnmoore Street	Maple to Fairfield Ave.	The W. T. Ryan Cons. Co.	15	Tile	420.0							
			12	Tile	645.1	32	480	4	20812.26	4661.95	16150.31	....
			10	Tile	180.2							
Maple Avenue	Otis to Mountford St.	The W. T. Ryan Cons. Co.	24	Tile	390.8							
			18	Tile	389.6	27	540	4				
			10	Tile	340.8							
Maple Avenue	White to Freeman St.	The W. T. Ryan Cons. Co.	24	Tile	389.2							
			20	Tile	390.7	23	460	5				
			12	Tile	188.7							
			10	Tile	199.4							
Otis Street	Maple to Campfield Ave.	The W. T. Ryan Cons. Co.	10	Tile	440.2	13	198	2				
White Street	Maple to Fairfield Ave.	The W. T. Ryan Cons. Co.	24	Tile	279.9				3780.83	846.91	2933.92	Inspn. to date
			18	Tile	625.2				240.00	53.76	186.24	Damages for
			12	Tile	247.9	47	709	7				right of way
			10	Tile	525.3							
Totals............	....	....	6.61 miles equal...		34903.4	746	12336	133	$192035.45	$84330.49	$104525.72	$3179.24
			Percentages of Cost		....	...	......	....	100.	43.9	54.5	1.6

Sewers in use March 31, 1914, equal 128.73 miles. Sewers in use March 31, 1915, equal 135.34 miles.

Note—Homestead Ave. Intercepting Sewer System and the Maple Ave. Sewer System not yet completed. Division of cost obtained by percentages from preliminary assessment.

SEWER TABLE FOR YEAR ENDING MARCH 31, 1915.

Work	Total Cost		Length		
	Amount	*Per Cent.*	*Feet*	*Miles*	*Per Cent.*
Completed					
Entire cost assessed on property benefitted	$4792.44	2.25	1971.7	0.38	5.6
Built and paid for by private parties under Drain Layers' Rules	3179.24	1.6	2037.9	0.38	5.8
Incompleted (Figures given for part completed).					
Maple Avenue System: City pays 22.4%; assessed 77.6%	123573.77	64.4	25022.5	4.74	71.8
Extension Homestead Avenue Interceptor: City pays 93.7%; assessed 6.3%	60490.00	31.5	5871.3	1.11	16.8
Totals	$192035.45	100.0	34903.4	6.61	100.0

Summary by Materials.	*Feet*	*Miles*	*Per Cent.*
Reinforced concrete pipe	5895.2	1.12	16.8
Concrete	2115.7	0.40	6.0
Concrete invert, block arch	1276.0	0.24	3.6
Vitrified tile block	3579.5	0.68	10.2
Vitrified tile	22037.0	4.17	63.4
Totals	34903.4	6.61	100.0

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1915.

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	North side and tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Albany Avenue	East St. to 50 ft. East of Magnolia St.	Paved	Sheet Asphalt	D. T.	1.69	2.8845	Nov. 21, 1914	Nov. 21, 1919
Allyn Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	Jun. 12, 1899	June 12, 1904
Amer. & Cent. Rows	East of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Amer. & Cent. Rows	East of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum St. to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street	Spruce St. to Farm'ton Av.	Tracks relaid	Granite Block	D. T.	......	....	1911	....
Asylum Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford St. to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Asylum Street	Main St. to Spruce St.	Repaved	Sheet Asphalt	S. & D.	2.28	By City	Oct. 12, 1908	Oct. 12, 1913
Asylum Street	Spruce St. to Garden St.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Spruce St. to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Hopkins St. to Farm'ton Av	S. side resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Asylum Street	Garden St. west to Header	N. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Jun. 23, 1914	June 23, 1919
Atheneum Street	Prospect St. to Main St.	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1897	....
Broad Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Capitol Avenue	Lafayette St. to Park River	Paved	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 26, 1905
Capitol Avenue	Lafayette St. to Broad St.	N. side resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Lafayette St. to Broad St.	S side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Broad St. to Park River	Both sides resurf'd	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.	......	....	1895	....
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	2.65	By City	Dec. 6, 1911	No guarantee

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1915 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Central Row	Main St. to Post Office	Paved	Block Asphalt	D. T.	$3.04	$5.5600	Oct. 12, 1896	Oct. 12, 1901
Central Row	Main St. to Post Office	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Church Street	Main St. to Trumbull St.	Paved	Sheet Asphalt	No	2.59	2.1163	Nov. 8, 1897	Nov. 8, 1902
Church Street	Main St. to Trumbull St.	Resurfaced	Sheet Asphalt	No	1.67	By City	July 28, 1909	July 28, 1914
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Church Street	Union Pl. to Spruce St.	Resurfaced	Sheet Asphalt	No	1.39	By City	Sep. 29, 1913	Sep. 29, 1918
Church Street	Spruce St. westerly	Paved	Granite Block	No	3.63	4.1578	Oct. 15, 1915	Oct. 15, 1914
Farmington Avenue	Asylum Av. to Woodland St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue	Asylum Av. to Sigourney St.	Full width resurf.	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Both sides resurf'd	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Tracks relaid	Sheet Asphalt	D. T.	.....	....	1909	....
Farmington Avenue	Woodland to Tremont St.	Paved	Sheet Asphalt	D. T.	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue	Tremont St. to Prospect Av.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ford Street	Pearl St. to Asylum St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Ford Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1918
Front Street	State St. to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Front Street	State St. to Morgan St.	Paved	Sheet Asphalt	No	2.15	2.8721	Dec. 5, 1913	Dec. 5, 1918
Gold Street	Main St. to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sep. 11, 1898	Sep. 11, 1903
Grove Street	Main St. to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect St. to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No	.....	....	1898	....
Hamilton Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Haynes Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church St. to Main St.	Resurfaced	Sheet Asphalt	No	1.27	By City	May 19, 1911	May 19, 1916
High Street	Asylum St. to Church St.	Resurfaced	Sheet Asphalt	No	0.89	By City	June 23, 1914	June 23, 1919
Hopkins Street	Broad St. to Asylum St.	Paved	Sheet Asphalt	No	2.58	2.3865	June 12, 1899	June 12, 1904
Kinsley Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903
Laurel Street	Bridge over Park River	Paved	Brick	S. T.	.....	....	1894	....

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1915 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Laurel Street	Bridge over Park River	Repaved	Brick	S. T.	$2.40	By City	July 11, 1900	....
Lewis Street	Pearl St. to Gold St.	Paved	Sheet Asphalt	No	2.51	$1.808	Sep. 24, 1900	Sep. 24, 1905
Main Street	Arch St. to Morgan St.	Paved	Sheet Asphalt	D. T.	2.49	5.4887	Dec. 14, 1896	Dec. 14, 1901
Main Street	Morgan St. to Windsor Ave.	Paved	Sheet Asphalt	D. T.	2.70	4.6395	Oct. 11, 1897	Oct. 11, 1902
Main Street	Wyllys St. to Arch St.	Paved	Sheet Asphalt	D. T.	2.66	4.5750	Oct. 25, 1897	Oct. 25, 1902
Main Street	Wyllys to Charter Oak Ave.	E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Main Street	State St. north	Tracks repaved	Wood Block	D. T.	......	....	1903	....
Main Street	Eng. House 1 to Wells St.	W. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Char. Oak Av. to Atheneum	E. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Jefferson St. to Park St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Windsor St. to Windsor Av.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Jefferson St. to Park St.	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1912	....
Main Street	Wyllys to N. end South Gr'n	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1908	....
Main Street	Park St. to Eng. House No. 1	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Triangle N. end South Gr'n	Resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Atheneum St. to Cent. Row	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	State St. to Windsor St.	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Wells St. to Ann St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Ann St. to Lumber St	Whole St. resurf'd	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
	North 200′ on Windsor Ave.	E. side resurfaced						
Market Street	State St. to Temple St.	Paved	Sheet Asphalt	S. T.	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1903
Market Street	Temple St. to Morgan St.	Paved	Sheet Asphalt	S. T.	2.56	2.3270	Oct. 9, 1899	Oct. 9, 1904
Market Strett	Morgan St. to Pleasant St.	Paved	Sheet Asphalt	No	1.69	2.0173	Nov. 21, 1914	Nov. 21, 1919
Market Street	State St. to Morgan St.	W. side and tracks resurfaced	Sheet Asphalt	S. T.	1.65	By City	Aug. 4, 1904	Aug. 4, 1914
Market Street	Temple St. to Morgan St.	E. side resurfaced	Sheet Asphalt	S. T.	0.89	By City	June 23, 1914	June 23, 1919
Market Street	State St. to Morgan St.	Tracks resurfaced	Sheet Asphalt	S. T.	......	....	1914	....
Marsh Court	Market St. to Village St.	Paved	Sheet Asphalt	No	2.15	1.1455	Dec. 5, 1913	Dec. 5, 1918
Morgan Street	Market St. to Main St.	Paved	Granite Block	S. T.	3.09	2.1525	Dec. 27, 1898	Aug. 27, 1899

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1915 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Morgan Street	Intersection with Front St.	Paved	Granite Block	D. T.	......	By City	Dec. 5, 1913	No guarantee
Morgan Street	Front St. to Market St.	Paved	Sheet Asphalt	D. T.	$2.15	$3.1641	Dec. 5, 1913	Dec. 5, 1918
Mulberry Street	Main St. to Wells St.	Paved	Sheet Asphalt	No	2.55	2.6970	Nov. 14, 1898	Nov. 14, 1903
Park Street	Under Railroad Bridge	Paved	Granite Block	S. T.	3.35	By City	Nov. 27, 1899	July 27, 1900
Park Street	Under Railroad Bridge	Relaid	Granite Block	S. T.	1.35	By City	Oct. 4, 1910	No guarantee
Park Street	Under Railroad Bridge	Repaved	Granite Block	D. T.	......	By Railroad	1912	....
Park Street	Bridge over Park River	Paved	Sheet Asphalt	D. T.	......	....	1898	....
Park Street	Bridge over Park River	Relaid	Sheet Asphalt	D. T.	......	By Railroad	1912	....
Pearl Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	2.89	3.8380	July 22, 1895	July 22, 1900
Pearl Street	Main St. to Ford St.	Repaved	Sheet Asphalt	S. T.	2.70	By City	Sep. 10, 1903	Sep. 10, 1913
Pearl Street	Main St. to Ford St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Pleasant Street	Winthrop St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.3373	July 11, 1898	July 11, 1903
Pleasant Street	Windsor St. to Railroad	Paved	Sheet Asphalt	No	2.15	2.7830	Dec. 5, 1913	Dec. 5, 1918
Pratt Street	Main St. to Trumbull St.	Paved	Brick	No	......	By City	1892	....
Pratt Street	Main St. to Trumbull St.	Surfaced	Sheet Asphalt	No	1.68	1.4285	Aug. 14, 1899	Aug. 14, 1904
Prospect Street	Atheneum St. to Cent. Row	Paved	Sheet Asphalt	No	2.55	2.5256	July 25, 1898	July 25, 1903
Prospect Street	Grove St. to Central Row	Resurfaced	Sheet Asphalt	No	1.27	By City	Oct. 23, 1912	Oct. 23, 1917
Sheldon Street	Main St. to Union St.	Paved	Sheet Asphalt	No	2.20	2.5747	Oct. 4, 1911	Oct. 4, 1916
Sheldon Street	Union St. to Commerce St.	Paved	Sheet Asphalt	No	2.16	3.0100	Oct. 23, 1912	Oct. 23, 1917
Spruce Street	Asylum St. to Church St.	Paved	Sheet Asphalt	No	2.51	3.0163	Oct. 1, 1900	Oct. 1, 1905
Spruce Street	Church St. northerly	Paved	Granite Block	No	3.63	4.3221	Oct. 15, 1913	Oct. 15, 1914
State Street	Main St. to Commerce St.	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
State Street	City Hall to Main St.	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. westerly	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. to Conn. Boul'v'd	Repaved	Sheet Asphalt	D. T.	2.16	By City	Dec. 9, 1912	Dec. 9, 1917
State Street	Conn. Boulv'd to Commerce	Covered	Macadam	No	......	By City	1908	....
State Street	Front St. to City Hall	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Talcott Street	Market St. to Main St.	Paved	Granite Block	No	3.09	2.7184	Sep. 26, 1898	May 26, 1899
Talcott Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.75	2.7184	Sep. 26, 1898	Sep. 26, 1903

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1915 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Talcott Street	Front St. to Market St.	Paved	Sheet Asphalt	No	$1.69	$1.7221	Nov. 21, 1914	Nov. 21, 1919
Temple Street	Main St. to Market St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Temple Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	2.7883	Nov. 21, 1914	Nov. 21, 1919
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	E. side and tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1913
Trinity Street	Capitol Ave. to North end of Bridge	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27, 1898	June 27, 1903
Trumbull Street	Church St. to Pratt St.	Resurfaced	Sheet Asphalt	No	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Union Place	Asylum St. to Church St.	Paved	Granite Block	No	3.37	....	1894	....
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Windsor Avenue	Main St. to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sep. 11, 1899	Sep. 11, 1904
Windsor Avenue	Albany Ave. to Mather St.	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	July 21, 1914	July 21, 1919
Windsor Avenue	Main St. to Canton St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1907	....
Windsor Avenue	Canton St. to Capen St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Windsor Street	Main St. to Park St.	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903
Windsor Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.69	2.5563	Nov. 21, 1914	Nov. 21, 1919

Note—Price given, except for resurfacing, is for completed pavement (asphalt and concrete, exclusive of excavation).

IMPROVED PAVEMENTS IN HARTFORD JANUARY 1, 1915

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Albany Avenue	Windsor Ave. to East St.	D. T.	4520.00					0.21
Albany Avenue	East St. to Magnolia St.	D. T.	14050.70					0.44
Allyn Street	Trumbull St. to Union Place	No	6041.00					0.29
Amer. & Cent. Rows	East of Post Office	D. T.		1885.00				0.03
Ann Street	Asylum St. to Allyn St.	No	1170.26					0.06
Asylum Street	Spruce St. to Farmington Av.	D. T.		4658.72				0.16
Asylum Street	Spruce St. to Farmington Av.	D. T.	1701.58					
Asylum Street	Main St. to Spruce St.	S. T. & D. T.	10351.20					0.48
Atheneum Street	Prospect St. to Main St.	No	558.33					0.07
Broad Street	Bridge over Park River	No	451.55					0.02
Capitol Avenue	Lafayette St. to Park River	D. T.	15075.34					0.60
Capitol Avenue	Park River to Laurel St.	D. T.	4067.50					0.18
Capitol Avenue	Bridge over Park River	S. T.					442.60	0.03
Central Row	Main St. to Post Office	D. T.	2000.00					0.05
Church Street	Main St. to Trumbull St.	No	1399.24					0.11
Church Street	Union Pl. to Spruce St.	No.	957.00					0.06
Church Street	Spruce St. westerly	No		238.17				0.01
Farmington Avenue	Asylum to Prospect Aves.	D. T.	42630.44					1.60
Ford Street	Pearl St. to Asylum St.	D. T.	2658.90					0.10
Front Street	State St. to Sheldon St.	No	5191.46					0.30
Front Street	State St. to Morgan St.	No	4583.29					0.26
Gold Street	Main St. to Lewis St.	No	1458.00					0.08
Grove Street	Main St. to Front St.	No	2242.07					0.19
Hamilton Street	Bridge over Park River	No	269.00					0.02
Haynes Street	Pearl St. to Asylum St.	No			718.42			0.05
High Street	Asylum St. to Main St.	No	6341.00					0.42
Hopkins Street	Broad St. to Asylum St.	No	3135.80					0.21
Kinsley Street	Market St. to Main St.	No	1037.20					0.09
Laurel Street	Bridge over Park River	S. T.				411.00		0.02

IMPROVED PAVEMENTS IN HARTFORD, JANUARY 1, 1915 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Lewis Street	Pearl St. to Gold St.	No	1085.00					0.10
Main Street	Wyllys St. to Windsor Ave.	D. T.	56414.27					1.47
Main Street	State St. north	D. T.					500.00	0.06
Market Street	State St. to Morgan St.	S. T.	5255.28					0.25
Market Street	Morgan St. to Pleasant St.	No	2846.4					0.17
Marsh Court	Market St. to Village St.	No	552.95					0.08
Morgan Street	Market St. to Main St.	S. T.		1520.87				0.10
Morgan Street	Market St. to Front St.	S. T. & D. T.	2213.94					0.09
Morgan Street	Intersection of Front Street	D. T.		342.71				
Mulberry Street	Main St. to Wells St.	No	1298.85					0.08
Park Street	Under Railroad Bridge	D. T.		560.00				0.03
Park Street	Bridge over Park River	D. T.	555.50					0.02
Pearl Street	Main St. to Ford St.	D. T.	8188.50					0.32
Pleasant Street	Winthrop St. to Main St.	No	1010.41					0.07
Pleasant Street	Windsor St. to Railroad	No	2239.71					0.14
Pratt Street	Main St. to Trumbull St.	No	1438.00					0.11
Prospect Street	Atheneum St. to Central Row	No	1802.62					0.13
Sheldon Street	Main St. to Commerce St.	No	5640.26					0.35
Spruce Street	Asylum St. to Church St.	No	2286.00					0.12
Spruce Street	Church St. northerly	No		1527.82				0.09
State Street	City Hall to Main St.	D. T.	1395.00					0.04
State Street	Front St. to Conn. Boulevard	D. T.	2609.94					0.09
State Street	Front St. westerly	D. T.	343.10					
State Street	Front St. to City Hall	D. T.		4501.81				0.15
Talcott Street	Market St. to Main St.	No		950.42				0.09
Talcott Street	Market St. to Main St.	No	340.20					
Talcott Street	Market St. to Front St.	No	1279.1					0.09
Temple Street	Market St. to Main St.	No	1051.87					0.09
Temple Street	Market St. to Front St.	No	2032.8					0.10

IMPROVED PAVEMENTS IN HARTFORD, JANUARY 1, 1915 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	***Length in Miles***
Trinity Street	Capitol Ave. to Ford St.	S. T. & D. T.	6947.80					0.27
Trumbull Street	Asylum St. to Main St.	No	5341.77					0.25
Trumbull Street	Pearl St. to Asylum St.	No			1377.13			0.04
Union Place	Asylum St. to Church St.	No		3267.00				0.12
Village Street	Windsor St. to Pleasant St.	No	1927.30					0.11
Windsor Avenue	Main St. to Capen St.	D. T.	19786.20					0.75
Windsor Street	Main St. to the Park.	No		2018.10				0.06
Windsor Street	The Park to Pleasant St.	No	2318.12					0.11
Windsor Street	Pleasant St. to Avon St.	No	3680.20					0.18
Totals			276004.75	21470.62	2095.55	411.0	942.60	12.46

Total Yardage all Pavements—298891.72 square yards.

Total Length—Asphalt 11.42 miles; Granite Block 0.84 miles; Wood Block 0.09 miles; Asphalt Block 0.09 miles; Brick 0.02 miles.

Total Length all Pavements—12.46 miles.

TABLE SHOWING THE NUMBER OF SQUARE YARDS LAID YEARLY AND THE MILEAGE ACTUALLY COVERED OF THE DIFFERENT KINDS OF IMPROVED PAVEMENT LAID IN HARTFORD SINCE 1892.

THIS TABLE INCLUDES ONLY NEW PAVEMENT LAID—NO REPAIR WORK.

Year Laid	*Brick*		*Block Asphalt*		*Granite Block*		*Wood Block*		*Sheet Asphalt*		*Total Yardage Laid Each Year*	*Total Miles*
	Yardage	*Miles*	*Yardage*	*Miles*	*Yardage*	*Miles*	*Yardage*	*Miles*	*Yardage*	*Miles*		
1892	1427.55	0.11									1427.55	0.11
1894	411.00	0.02			3267.00	0.12					3678.00	0.14
1895	442.60	0.03	7755.50	0.32							8198.10	0.35
1896			12063.32	0.38					21466.71	0.63	33530.03	1.01
1897			6694.04	0.36					45074.48	1.51	51768.52	1.87
1898			8925.19	0.32	9148.10	0.40			21974.39	1.11	40047.68	1.83
1899					560.00	0.03			63784.40	3.10	64344.40	3.13
1900									23923.34	1.06	23923.34	1.06
1903							600.00	0.06	8188.50	0.32	8788.50	0.38
1908					1756.94	0.07			13010.10	0.58	14767.04	0.65
1909					4629.87	0.12			7805.60	0.28	12435.47	0.40
1910									14487.97	0.50	14487.97	0.50
1911							442.60	0.03	10963.41	0.50	11406.01	0.53
1912									10583.97	0.58	10583.97	0.58
1913					2108.70	0.10			9589.89	0.57	11698.59	0.67
1914									23889.20	0.98	23889.20	0.98
Totals	2281.15	0.16	35438.05	1.38	21470.61	0.84	1042.60	0.09	274741.96	11.72	334974.37	14.19

Note—The original paving on several streets has been removed and replaced by other pavements, and since this table contains both the original and the present pavement, the totals given here exceed the total yardage and miles in use at the present time as shown in another table.

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID.

Street	*Location*	*Asphalt Used*	*Year Laid*
Albany Avenue	South side, Lumber St. to East St.	Trinidad	1900
Albany Avenue	North side and tracks, Lumber St. to East St.	California (Atlas)	1909
Albany Avenue	Both sides and tracks, East St. to 50 feet East of Magnolia St.	Aztec (Mexican)	1914
Allyn Street	Trumbull St. to Union Pl.	Trinidad	1899
Ann Street	Asylum St. to Allyn St.	Trinidad	1898
Asylum Street	Main St. to Spruce St.	Bermudez	1908
Asylum Street	Strips on both sides, Spruce St. to Garden and Hopkins Sts.	Bermudez and California (Atlas)	1912
Asylum Street	Strip on north side, Garden St. westerly to header at macadam	Aztec (Mexican)	1914
Asylum Street	South side, Hopkins St. to Farmington Ave.	Bermudez and 5% California	1913
Atheneum Street	Prospect St. to Main St.	Trinidad	1896
Broad Street	Bridge over Park River	Bermudez and 5% California	1914
Capitol Avenue	Both sides, Park River Bridge to Laurel St.	Bermudez	1909
Capitol Avenue	North side, Hungerford St. to Lafayette St.	Bermudez	1910
Capitol Avenue	South side and south track, Broad St. to Lafayette St.	Bermudez	1911
Capitol Avenue	North track and dummy, 150 east of Oak St. to Lafayette St.	Bermudez	1911
Capitol Avenue	Both sides, Broad St. to Park River Bridge	Bermudez	1911
Capitol Avenue	Tracks, Park River Bridge to Laurel St.	California (Atlas)	1909
Capitol Avenue	North side, Hungerford St. to Broad St.	California (Atlas)	1910
Capitol Avenue	Intersection at Lafayette St.	California (Atlas)	1911
Central Row	Main St. to granite block	Bermudez (small area California)	1911
Central Row	South side, from granite block 155 feet west	California (Atlas)	1909
Church Street	Main St. to Trumbull St.	California (Atlas)	1909
Church Street	Union Pl. to Spruce St.	Bermudez and 5% California	1913
Church Street	Intersection at Spruce St.	Trinidad and Bermudez, 50 and 50%	1913
Farmington Avenue	South track and dummy, Sigourney St. to Woodland St.	Bermudez	1909
Farmington Avenue	Woodland St. to 100 feet east of Tremont St.	Bermudez	1910
Farmington Avenue	South side, south track and dummy, from 110 feet east of Tremont St. to 120 feet west of Beacon St.	Bermudez and Trinidad	1911
Farmington Avenue	North side and north track, from 110 feet east of Tremont St. to140 feet west of Beacon St.	California and Bermudez	1911
Farmington Avenue	From 120 feet west of North Beacon St. and from 140 feet west of North Beacon St. to City Line, both sides	California (Atlas)	1911

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Farmington Avenue	North track, Sigourney St. to Woodland St.	California (Atlas)	1909
Farmington Avenue	North and south sides, from Asylum to Woodland Sts.	Bermudez and 5% California (Atlas)	1913
Farmington Avenue	North and south tracks and dummy, from Sigourney St. to Asylum St.	Bermudez and 5% California (Atlas)	1913
Ford Street	Asylum St. to Bridge over Park River	Bermudez	1908
Front Street	Potter St. to Sheldon St.	Bermudez and California	1912
Front Street	Potter St. to State St.	California (Acme)	1912
Front Street	Morgan St. to State St.	Bermudez and 5% California (Atlas)	1913
Front Street	Intersection at Talcott St.	Trinidad and Bermudez, 50 and 50%	1913
Gold Street	Main St. to Lewis St.	Trinidad	1898
Grove Street	Front St. to Prospect St.	California (Acme)	1912
Grove Street	Prospect St. to Main St.	Trinidad	1898
Hamilton Street	Bridge over Park River	Bermudez and 5% California	1914
High Street	Church St. to Main St.	Bermudez	1911
High Street	Asylum St. to south side of Allyn St., north side of Allyn St. to south side of Church Street	Bermudez and 5% California	1914
Hopkins Street	Broad St. to Asylum St.	Trinidad	1899
Kinsley Street	Market St. to Main St.	Trinidad	1898
Lewis Street	Pearl St. to Gold St.	Trinidad	1900
Main Street	East side, Wyllys St. to 100 feet south of Charter Oak Ave.	Aztec (Mexican)	1914
Main Street	East side, from 140 feet north of, to 100 feet south of Charter Oak Ave.	Bermudez	1910
Main Street	East side from Sheldon St. to 140 feet north of Charter Oak Ave.	California (Obispo)	1910
Main Street	Sheldon St. Intersection	Bermudez	1910
Main Street	East side, from 80 feet north of Arch St. to Sheldon St.	California (Obispo)	1910
Main Street	East side, Atheneum St. to 80 feet north of Arch St.	Bermudez	1910
Main Street	East side, Atheneum St. to 70 feet north of Grove St.	Bermudez and California (Atlas)	1912
Main Street	East side, Central Row to 70 feet north of Grove St.	Bermudez	1912
Main Street	East side, Central Row to State St.	Trinidad	1896
Main Street	East side, from State St. to 100 feet north of Temple St.	Bermudez	1912
Main Street	East side, from 100 feet north of Temple St. to 50 feet north of Talcott St.	Bermudez and California (Atlas)	1912
Main Street	East side, Windsor St. to 50 feet north of Talcott St.	Bermudez	1912
Main Street	North side, Windsor St. to 120 feet east of Pleasant St.	California (Atlas)	1911
Main Street	North side, Windsor Ave. to 120 feet east of Pleasant St.	Bermudez	1911

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Main Street	West side, from Jefferson St. 80 feet north, and tracks 190 feet north	Bermudez	1912
Main Street	West side, Park St. to 80 feet north of Jefferson St.	Bermudez and Trinidad	1911
Main Street	West side, Park St. to Engine House No. 1	California (Atlas)	1912
Main Street	West side, Wells St. to Engine House No. 1	Bermudez	1910
Main Street	West side, Wells St. 180 feet south of Mulberry St.	Bermudez and California (Atlas)	1912
Main Street	West side, from 270 feet south of Grove St. to 180 feet south of Mulberry	California (Acme)	1912
Main Street	West side, Grove St. 270 feet south	Bermudez	1912
Main Street	West side, Grove St. to Asylum St.	Bermudez and California (Acme)	1912
Main Street	West side, Asylum St. to 110 feet north of Church St.	Bermudez and California	1912
Main Street	South-west side, from 540 feet east of Ann St. to 110 feet north of Church	California (Atlas)	1912
Main Street	South side, from Ann St. 540 feet easterly	Bermudez and California (Atlas)	1912
Main Street	Triangle between tracks at Tunnel, including tracks and south side from east side of Ann St. west to Lumber St.	Aztec (Mexican)	1914
Main Street	Triangle between tracks at South Green	Bermudez and California (Atlas)	1912
Main Street	Tracks, Wyllys St. to north end of South Green	Bermudez	1908
Main Street	Tracks, Central Row to State St. and Pearl St. Intersection	Bermudez	1909
Main Street	Track work at Main St., State St. and Asylum St. Intersection	California (Atlas)	1909
Main Street	Tracks at Park St. to 190 feet north of Jefferson St.	California (Atlas)	1912
Main Street	West side, Wyllys St. to Park St. (East Section)	Trinidad	1897
Market Street	West side, Morgan St. to State St.	California (Atlas)	1909
Market Street	Track, State St. to Morgan St.	Bermudez and 5% California	1914
Market Street	Morgan St. to Pleasant St.	Aztec (Mexican)	1914
Market Street	East side, State St. to Temple St.	Trinidad	1898
Market Street	East side, Temple St. to Morgan St.	Bermudez and 5% California	1914
Marsh Court	Village St. to Market St.	Bermudez and 5% California	1918
Morgan Street	Both sides and tracks, Market St. to Front St.	Bermudez and 5% California	1918
Mulberry Street	Main St. to Wells St.	Trinidad	1898
Park Street	Bridge over Park River	Bermudez	1912
Pearl Street	Tracks from Main St. to 150 feet west	Bermudez	1909
Pearl Street	Tracks, from 150 feet west of Main St. to Ford St.	Bermudez	1910
Pearl Street	Both sides, Main St. to Ford St.	Trinidad	1908
Pleasant Street	Winthrop St. to Main St.	Trinidad	1903

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Pleasant Street	Windsor St. to Railroad (Windsor St. to Market St.)	Trinidad	1913
	(Market St. to Railroad)	Trinidad and Bermudez, 50 and 50%	1913
Pratt Street	Main St. to Trumbull St.	Trinidad	1899
Prospect Street	Central Row to Grove St.	California (Acme)	1912
Prospect Street	Grove St. to Atheneum St.	Trinidad	1898
Sheldon Street	Union St. to Taylor St.	California (Acme)	1912
Sheldon Street	Main St. to 77 feet west of Union St.	California (Atlas)	1911
Sheldon Street	Main St. from 77 west of Union St. to Union St.	Texaco	1911
Spruce Street	Asylum St. to Church St.	Trinidad	1900
State Street	Gutters, both sides, from Market St. to Front St.	Bermudez	1901
State Street	South side and track, from end of granite block west of Front St. to Connecticut Boulevard	Bermudez	1912
State Street	North side, track and dummy, from 220 feet east of granite block to Connecticut Boulevard	Bermudez and California (Acme)	1912
State Street	North side, track and dummy, from granite block 220 feet easterly	California (Acme)	1912
State Street	North side, granite block to Main St.	California (Atlas)	1909
Talcott Street	Gutters on both sides, Market St. to Main St.	Trinidad	1898
Talcott Street	Front St. to Market St.	Aztec (Mexican)	1914
Temple Street	Market St. to Main St.	Trinidad	1898
Temple Street	Front St. to Market St.	Bermudez and 5% California	1914
Trinity Street	East side and tracks, Capitol Ave. to Bridge	Bermudez	1908
Trinity Street	West side, Capitol Ave. to Ford St.	Aztec (Mexican)	1914
Trumbull Street	Asylum St. to Pratt St. and Church St. to Main St.	Trinidad	1898
Trumbull Street	Church St. to Pratt St.	Bermudez and 5% California	1914
Village Street	Windsor St. north	Trinidad	1898
Village Street	City Park to Pleasant St.	Trinidad	1899
Windsor Avenue	Tracks, Albany Ave. to Canton St.	Bermudez	1907
Windsor Avenue	Tracks, Canton St. to Capen St.	California (Atlas)	1910
Windsor Avenue	East side, Main St. to Capen St., also west side, Mather St. to Capen St.	Trinidad	1899
Windsor Avenue	West side, Main St. to Mather St.	Aztec (Mexican)	1914
Windsor Street	City Park to Pleasant St.	Trinidad	1898
Windsor Street	Pleasant St. to Avon St.	Aztec (Mexican)	1914

THE FOLLOWING SUMS HAVE BEEN EXPENDED FOR REPAIRS ON PAVED STREETS TO JANUARY 1, 1915.

Street	*Previous to 1905*	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	*Total*
bany Avenue	$ 7.19	$	$ 17.01	$198.06	$190.72	$200.41	$ 28.25	$110.67	$160.67	$245.50	$ 28.58	$1186.66
Allyn Street	30.37	17.67	124.89	109.75	163.69	451.30	156.37	352.54	460.50	265.28	261.36	2393.72
Amer.& Cen.Rows	1769.21	50.02	412.44	2.98	413.24						23.51	2671.40
Ann Street					6.40		5.64		8.14	10.22	14.40	44.80
Asylum Street	1818.93	686.01	745.67	232.46	163.83	245.25	189.43	231.85		44.91	8.03	4368.37
Atheneum Street					11.47	15.45	5.91	88.23	148.71	145.54		415.31
Broad St.Bridge								17.52	20.18	12.25		49.95
Capitol Avenue		36.10	483.43	1668.31	1303.49	1343.15	1727.88				84.83	6647.19
Church Street	210.41	91.17	168.77	325.43	139.56	53.48	71.44	139.08	160.06		32.14	1391.54
Farmington Ave.	2354.00	879.91	1929.23	2810.71	909.28	3110.96	2180.38	3333.76	1928.94		75.91	19513.08
Ford Street	236.32		414.40	1.12				95.55				747.39
Gold Street								26.50	23.55		18.34	63.39
Grove Street					39.24	56.20	58.31	23.43	109.49	126.35	62.35	475.37
Hamilton St.Br'ge								70.06				70.06
Haynes Street	93.16						20.13		142.84	36.16	4.00	296.29
High Street	98.66	28.37	418.45	515.60	309.02	1108.58	580.22	262.06	228.80	158.35	39.84	3747.95
Hopkins Street	243.77		216.60	272.37	768.46	390.62	694.15	522.98	392.37	204.85	341.96	4048.13
Kinsley Street	32.34					12.35			13.53		6.72	64.94
Lewis Street								8.89	24.73		15.76	49.38
Main Street	3286.12	2414.36	3783.59	3672.51	6513.41	4168.23	2831.77	1899.11	958.50	602.03	79.15	30208.78
Market Street	775.62	92.93	80.47	828.89	288.90	261.93	232.01	129.15	515.45	270.88	141.71	3617.94
Morgan Street	57.47		35.59		8.80	7.35	8.56	74.03				191.80
Mulberry Street		28.22		25.69	51.07	13.68		29.93	39.24	68.24	125.97	382.04
Park Street	139.89	106.89			103.72							350.50
Pearl Street	1144.86			41.38			2.77		20.07	51.82	129.06	1389.96
Pleasant Street	9.91						54.26	10.31			10.59	85.07
Pratt Street	18.99	8.61	4.64	12.14	93.44	71.75	55.67	42.12	76.56	193.41	77.74	655.08
Prospect Street	33.44	91.07				115.62	92.17	85.40	198.98	47.68	184.31	848.67
Sheldon Street											3.68	3.68
Spruce Street	3.19					4.27	4.10	30.15	45.94	113.95	105.77	307.37
State Street	4756.25	1108.63	2771.30	5.96	74.78					56.80	31.65	8805.37
Talcott Street			12.25						21.78		5.44	39.47
Temple Street	2.90						7.90			34.61	1.28	46.69
Trinity Street	431.68	69.27	766.23	387.14	1564.86	267.81	190.82	205.71	479.32	366.37		4729.21
Trumbull Street	154.98	43.51	106.55	391.07	130.72	219.91	214.58	114.34	496.46	428.03	178.61	2478.76
Union Place			131.91		35.16		6.66		16.35			190.08
Village Street								7.83	59.40	38.69	23.07	128.99
Windsor Street	11.59				35.15			15.54	351.90	110.87	116.88	641.98
Windsor Avenue	209.46	94.74	518.42	764.31	563.29	1145.77	685.33	1115.76	1222.31	1067.41	548.26	7935.06
Totals	$17930.71	$5847.48	$13141.84	$12265.88	$13883.70	$13264.07	$10104.71	$9052.50	$8824.88	$4695.20	$2780.90	$111281.87

TABLE SHOWING COST PER YARD FOR REPAIRS TO SHEET ASPHALT PAVEMENT ON TYPICAL STREETS OR SECTIONS OF STREETS FOR EACH YEAR AFTER THE EXPIRATION OF GUARANTEE TO JANUARY 1, 1915.

Street	*Section*	*Yards City Only*	*Com-pleted*	*Years Guaranteed*	*Sixth Year*	*Seventh Year*	*Eighth Year*	*Ninth Year*	*Tenth Year*	*Eleventh Year*	*Twelfth Year*	*Thirteenth Year*	*Fourteenth Year*	*Fifteenth Year*	*Sixteenth Year*	*Seventeenth Year*
Allyn Street	....	....	1899	5	.003	.02	.02	.03	.07	.02	.06	.08	.04	.04	....	....
Ann Street	....	....	1898	5	....	....	....	....	.006	....	.005	....	.01	.01	.01	....
Atheneum Street	....	....	1896	5	....	....	....	....	....	....	.02	.03	.07	.16	.27	.26
Gold Street	....	....	1898	5	....	....	....	....	....	....	....	.02	.02	....	.01	....
Grove Street	Main St. to Prospect St.	913	1898	5	....	....	....	....	.04	.06	.06	.03	.12	.14	.07	....
Hopkins Street	....	....	1899	5	....	.07	.09	.24	.12	.22	.17	.13	.07	.11	....	....
Kinsley Street	....	....	1898	5	....	....	....	....	....	.09	....	.01	....	....	.01	....
Lewis Street	....	....	1900	5	....	....	....	....	....	.01	.02	....	.01	....	....	....
Mulberry Street	....	....	1898	5	....	.02	....	.02	.04	.01	....	.02	.03	.05	.07	....
Pearl Street	....	4581	1903	....	....	....	....	....	....	.03	....	....	....	....	....	....
Pleasant Street	Winthrop St. to Main St.	1010	1898	5	.01	....	....	....	....	....	.05	.01	....	....	.01	....
Pratt Street	....	....	1899	5	.01	.003	.01	.06	.05	.04	.03	.05	.13	.05	....	....
Spruce Street	Asylum St. to Church St.	2286	1900	5	....	....	....	.002	.002	.01	.02	.05	.05	....	....	....
Temple Street	Main St. to Market St.	1052	1898	5	.003	....	....	....	....	....	.01	....	....	.03	.001	....
Trinity Street	East side only	2000	1913	5	....	....	....	....	....	....	....	....	....	....	....	....
Village Street	City Park to Pleasant St.	1927	1899	5	....	....	....	....	....	....	.005	.03	.02	.01	....	....
Windsor Avenue	East side Main St. to Canton St. and both sides Canton St. to Capen St.	8630	1899	5	....	....	....	....	....	....	....	....	....	.06	....	....
Windsor Street	The Park to Pleasant St.	2318	1898	5	.005	....	....	....	.015	....	....	.01	.10	.05	.03	....

Box
TE
25

1227

NINTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1916

NINTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

OF THE

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1916

THE BOND PRESS, INC.,
HARTFORD, CONN.

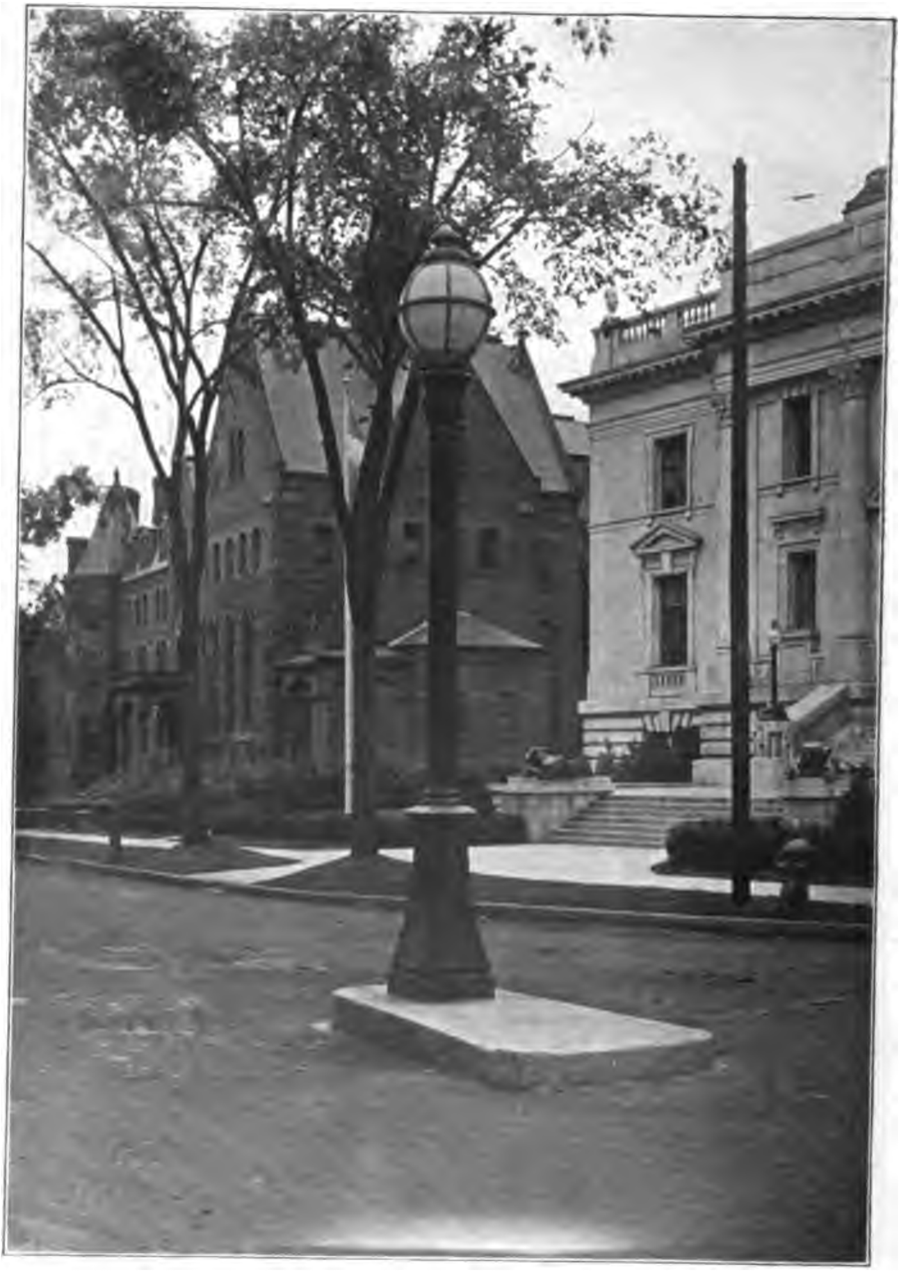
HARVARD UNIVERSITY
The Library of the Schools
of Landscape Architecture and City Planning

ORGANIZATION

ROSCOE N. CLARK, City Engineer.
ROBERT J. ROSS, Assistant City Engineer.
HARRY G. WHITMAN, Chemist.
WILLARD S. BREWER, Division Engineer.
HERBERT G. CLARK, Division Engineer.
H. IRVING SKILTON, Division Engineer.
F. PERRY CLOSE, Assistant Engineer.
JOHN P. MURPHY, Assistant Engineer.
JOHN F. DORAN, Assistant Engineer.
ALDEN WELLS, Assistant Engineer.

EDWARD L. DONAGHUE, Inspector.
SAMUEL G. GEER, Inspector.
PAUL P. KIMBALL, Inspector.
JOHN W. KNOX, Inspector.
FLORENCE L. CHAPIN, Clerk.

GEORGE ANGELO.
K. HILDING BEIJ.
CLEMENT M. BRODERICK.
CHARLES W. COOKE.
ROBERT E. CROSS.
AARON FIEN.
GEORGE S. FRANCIS.
E. SELDEN GEER, JR.
PETER K. RASK.
THOMAS ROWLAND.
ELLIS B. WILSON.



ISLE OF SAFETY, FARMINGTON AVENUE AND BROAD STREET

REPORT.

Hartford, Conn., August 25, 1916.

To his Honor the Mayor, and to the Honorable Court of Common Council of the City of Hartford, Connecticut.

Gentlemen:

I have the honor to submit the following report of the work of the Department of Engineering for the year ending March 31, 1916.

SCOPE OF WORK.

The Department of Engineering of the City of Hartford serves all city departments with the exception of the Water Department which maintains a separate engineering force.

The work handled is varied and the scope of the department's activities is measurable only by the extent of the city's activities, as the department is concerned to a greater or less degree with most municipal improvements or undertakings.

This varied nature of the work has brought about the organization of several divisions, each in direct charge of a division engineer.

The continued activities of these various division-heads each along a line of special endeavor has resulted in the development of men of particular ability in each branch of the service.

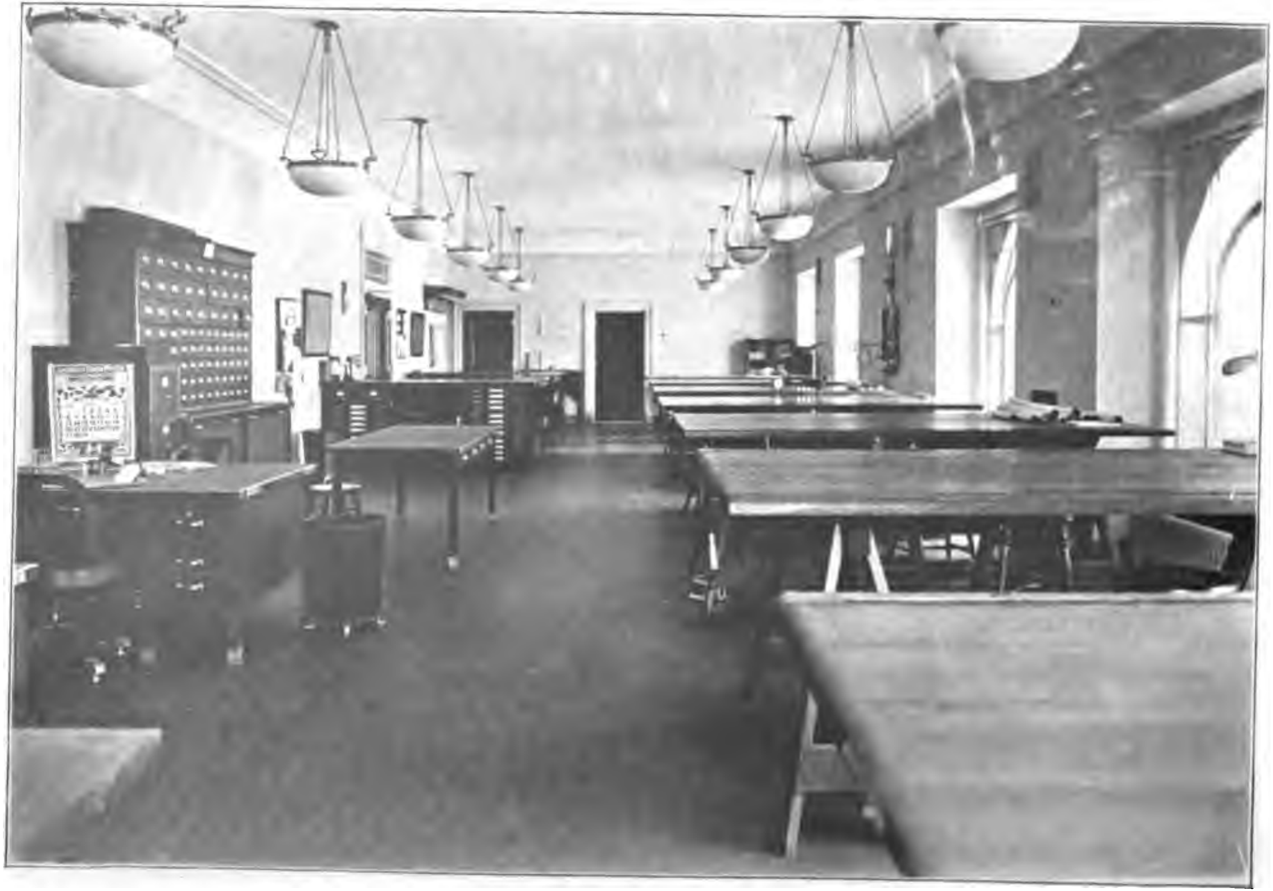
The divisions, five in number, are as follows: Office Division, Paving Division, Sewer and Bridge Division, Survey Division, and Chemistry and Testing Division. The work handled by the various divisions, described in considerable detail elsewhere in this report, briefly stated is as follows.

The *Office Division* handles the greater part of the routine work of the office. It makes all house number maps and issues all official house numbers; it gives out all drain layers' permits; inspects all drains laid and plots these drains on the sewer map at the same time filing cards in the sewer index which makes it possible at any time to refer to all data in connection therewith. It stakes all building and veranda lines, locates and measures up all new buildings and plots them on the property maps. It makes records of all real estate transfers indicating changes of ownership on the property maps. It furnishes the Board of Assessors each year with an up-to-date set of sectional maps of the city with every piece of real estate drawn to scale and showing all buildings of a taxable value together with the latest ownerships. It furnishes the Board of Street Commisioners with a complete list of all properties on streets which are oiled or sprinkled, with the exact frontages, ownerships, rates, and amounts of bills and the addresses to which bills are to be sent.

It receives most of the calls for information, both over the telephone and personal, and looks up and furnishes the information desired in the majority of these requests.

The *Paving Division* handles all new improved paving projects and work analogous thereto, and attends to the repairs of the existing pavements. It furnishes line and grade for all track construction and checks same during the progress of installation. It prepares underground maps showing the locations of all pipes, sewers, duct lines for wires, etc., and plans future extensions of these utilities. It makes studies of and plans for grade-crossing elimination. It also makes many special plans for work not particularly within the province of any special division; figures payments due contractors and prepares assessments covering the cost of work performed under its supervision.

The *Sewer and Bridge Division* treats with all sewer and drainage problems and with questions pertaining to new bridges and bridge repairs, and with similar structural work calling for special design. In handling this class of work, the first steps are usually in the nature of investigation and study as to the needs and conditions. Reports and recommendations then follow usually accompanied by preliminary plans or sketches with an estimate of the cost of the improvement based on these



DRAUGHTING ROOM DEPARTMENT OF ENGINEERING plans. If the suggested improvement is to become a reality, final plans are made, forms of proposals and contracts prepared, together with the specifications to govern the work. After the contracts are awarded, this division is in direct charge of the engineering and superintendence of the work until its completion. It figures payments due and prepares assessments for the cost of the improvements.

The *Survey Division* makes most of the surveys, for whatever purpose needed. It investigates and plans the layouts of lines and grades for all new street developments; sets lines and grades for all curb and sidewalk construction both for new work and for resetting. It furnishes the street department with stakes to govern their street grading and their various other street construction works. It works in conjunction with the Park Department on its several construction activities, makes plans for the same, and furnishes the necessary points needed for this work. It makes many maps required for special purposes, and prepares assessments covering the cost of the work which comes under its supervision.

The *Chemistry and Testing Division* examines materials used in public construction work and makes the necessary tests to determine and regulate their quality. The work is of extreme importance and guarantees the city against goods of inferior quality, and those that are below the specifications to which they are expected to conform.

OFFICE DIVISION

The grouping of all the city departments in one building has made it more convenient for the public to consult this office when transacting business with other city officers, a fact which is partly responsible for the increase in volume of the work handled by the office division with whom the public first comes in contact.

An accurate count of requests for information received either in person or by telephone has been made at intervals during the season which shows that we furnish information in the office to one hundred and twenty-five people every working day. This total divided into the eight-hour regulation working day gives an average of fifteen requests for information per hour.

The issuing of official house numbers and of permits to lay private drains and to connect with the public sewers is an important item in this phase of the work of the office division.

During the past season eight hundred and sixty house numbers were issued and duplicate cards filed. This is four hundred and fifty-five more than the number issued during the previous year, or more than one hundred per cent. increase.

The following streets or avenues were renumbered: Barbour, Chapman, Church, Huyshope, James, Orchard, Prospect Avenue South, South Prospect, Suffield, Washington, and Wethersfield.

All new streets have been assigned proper numbers as fast as they have been developed.

Moving into the new quarters made necessary the reindexing of all plans, profiles, etc., in the files. This occasioned considerable extra work as it involved changing the drawer and sheet numbers on over five thousand maps as well as making similar changes on note books and card indexes.

The number of daily records of all real estate transfers which were taken from the Town Clerk's books and posted on our property map was two thousand seven hundred and eighty for the year.

The usual amount of old title and record searching work was attended to in connection with the various assessments.

As customary, a set of one hundred and thirty-six property maps showing every taxable piece of real estate in the city together with the ownership thereof was made for the Board of Assessors.

Twenty-four new house number plans were made.

Twenty-four real estate sub-division plans filed with the Town Clerk were plotted in the map book used in connection with the land records.

Necessary changes were made on the standard city map, and numerous special plans were made for specific purposes.

A new map of the city was made on a scale of 400 feet to the inch for the Board of Street Commissioners' use. This map was placed under the plate glass top of the large table in the Street Commissioners' room. By this arrangement made at the suggestion of the City Engineer at the time the furniture for the Municipal Building was designed, it is now possible for the commissioners to consult a map of the city at any time during a meeting, as the map is constantly before them.

PRIVATE DRAINS.

During the past year, in accordance with the city ordinance, and the rules and regulations of the Board of Street Commissioners, forty-four licenses were issued to drain-layers for the laying of private drains. This is the largest number of licenses issued in any single year since these rules and regulations went into effect. The main reason for this increase in drain-layers is the growing tendency of the general building contractor to do his own drain work instead of sub-letting it.

Up to and including this year, a total of 6,920 permits have been issued (an average of 532 permits a year for the last 13 years) by this department for the laying of new drains or repairing existing drains. For the past year 721 permits were issued to these drain layers, the largest number of permits ever issued in any single year, and an increase of 69 over the number issued the preceding year.

Drainage work may be classified under two heads—new work and repairs. Of the first class there are several kinds viz: those drains which are connected at curb line, those at the main sewer, and drains of other sizes than the regulation 6″ house drain. The second class (repairs) covers the taking up of old tile and relaying it with new, replacing old drains with cast-iron pipe, the lowering of existing drains, and the flushing and cleaning of same.

Of the number of permits issued the past year, 515 were for new house connections, an increase of 91 over the number issued the preceding year. Of these 515 new drains, 342 were for curb connections, 135 were 6″ connections made at main sewer, 26 were eight-inch drains, 6 for ten-inch, and 4 for twelve-inch.

Of the 62 permits which were issued for the repairing of old or existing drains, 43 were for general repair work, 9 were for the lowering of drains, 1 was for replacing an old tile drain by an 8-inch cast-iron pipe, 2 were for relaying old drains with 6-inch cast-iron pipe, and 7 were for relaying old drains with 5-inch cast-iron pipe.

The public service corporations which are placing their wires in underground conduits took out 74 permits to drain their manholes, divided as follows: 32 permits were issued to the Hartford Electric Light Company for manhole drains; 15 to the S. N. E. Telephone Company, and 27 to the Connecticut Company. Four permits were issued to The Connecticut Company to connect their track drains either with the city catch-basins or directly with the sewers. To the Board of Water Commissioners were issued 62 permits. Of this number 42 were for hydrant drains and 20 for blow-offs.

The general supervision which this department maintains in all operations regarding the laying of private drains has materially bettered the quality of the work done by the drain-layers. This inspection of drains both assures the property owner of a satisfactory drain and saves the city much trouble and expense in sewer repairs. During the inspection, sketches and notes are made giving the depth of the connection below street surface or curb level, an exact location at main sewer or curb line and at the building which the drain serves. If the drain extends to the main sewer, notes are taken showing the exact location of all underground ducts and mains which are encountered during the progress of the work. This information is transferred and plotted on the underground maps and is made use of when assigning locations for new pipe lines, especially upon the older streets of this city for which no maps previously existed which would show the location of underground structures.

During the past year, under the drain-layers' rules, sewers or extension of sewers were built in the following streets: Adelaide Street, Affleck Street, Albany Avenue, Bloomfield Avenue, Enfield Street, Kinsley Street, Mansfield Street, Maple Avenue, Tremont Street, Warrenton Avenue, Wethersfield Avenue, and Winchester Street.

A card index is maintained containing necessary information regarding all drains laid and all old mains, ducts, and sewers

encountered while laying drains. By reference to these cards, it is possible to quickly furnish figures as to the location and depth of the drain, etc., to all parties desiring such information, should it ever become necessary to repair the drain or to make a new connection.

STREET SPRINKLING ASSESSMENT.

The street sprinkling assessment continues to increase steadily each year. Two and thirty-four hundredths miles (2.34) of sprinkled or oiled streets were added last season. This brings the total up to 100 miles, which means an actual frontage assessment of 200 miles and comprises nearly 12,000 separate ownerships.

STREET, BUILDING AND VERANDA LINES.

Working from the permits issued by the Building Inspector as well as from calls received directly from the various builders and property owners, six hundred and eighty-nine street, building, and veranda lines were staked out during the past year.

Seven hundred and sixty-nine new buildings of an assessable value were constructed. These were all measured and plotted on the property maps. This branch of the work shows a 20% increase over the previous year.

PAVING DIVISION.

IMPROVED PAVEMENT.

The area of all new improved pavements laid in 1915 exclusive of repairs was 30,969.7 square yards, 29,873.3 square yards being sheet asphalt and 1096.4 square yards being granite block. This area includes that laid by The Connecticut Company on Wethersfield Avenue as well as that laid by the city. The entire cost to the city for laying this improved pavement, exclusive of repairs, was $39,604.15.

The work was done on the following streets: Atheneum Street South; Village Street between Pleasant Street and Avon

Street; and Wethersfield Avenue from Wyllys Street to Bond Street were paved with sheet asphalt. Trumbull Street from Pealr Street to Hicks Street was paved with granite block. The asphalt block paving on Trumbull Street between Pearl and Asylum Streets was removed and a surface of sheet asphalt substituted therefor.

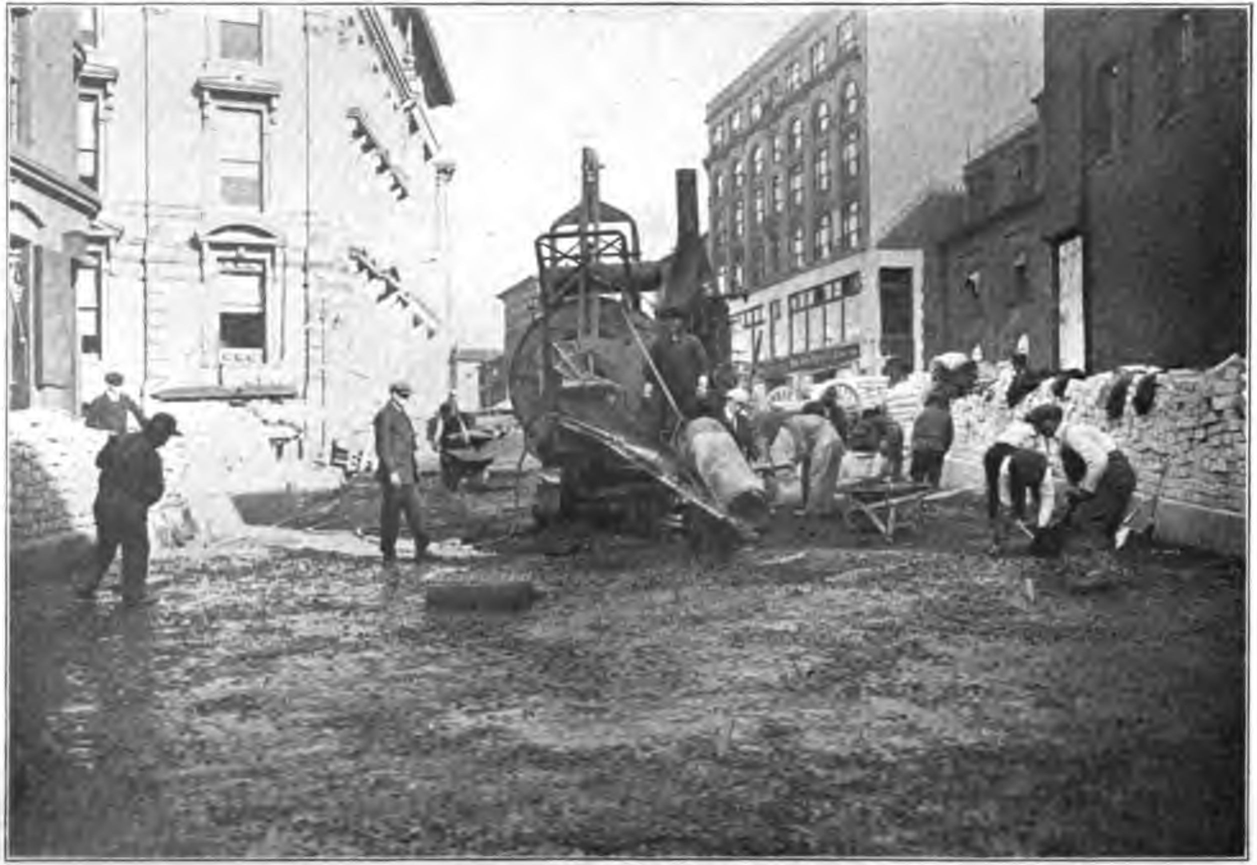
In connection with the new paving work, and in accordance with the custom of the past two seasons, the city undertook the resetting of the curb and walks along the streets to be paved. This work was done by contract, one-third of the cost being paid by the city, and the remaining two-thirds of the cost being assessed against the abutting property owners. It was found necessary to draw up new curb grades for these streets, and new lines were also established for the curbs in the case of Wethersfield Avenue so that the street lines and curb lines are now parallel on that street in the section paved. This improvement in connection with the new grades gives a much more pleasing appearance to the street. A wide street of the type of Wethersfield Avenue, with a wide roadway paved with a modern pavement, gives an avenue of entrance of which the city may well be proud. All the large arteries of travel leading from and to the city should be paved to the city limits as soon as possible.

There is now a total of 330,476.22 square yards of improved pavement in the city, composed of the following: Sheet asphalt, 305,837.18 square yards; Block asphalt, 718.42 square yards; Granite block, 22,567.02 square yards; Wood block, 942.6 square yards; Brick, 411 square yards.

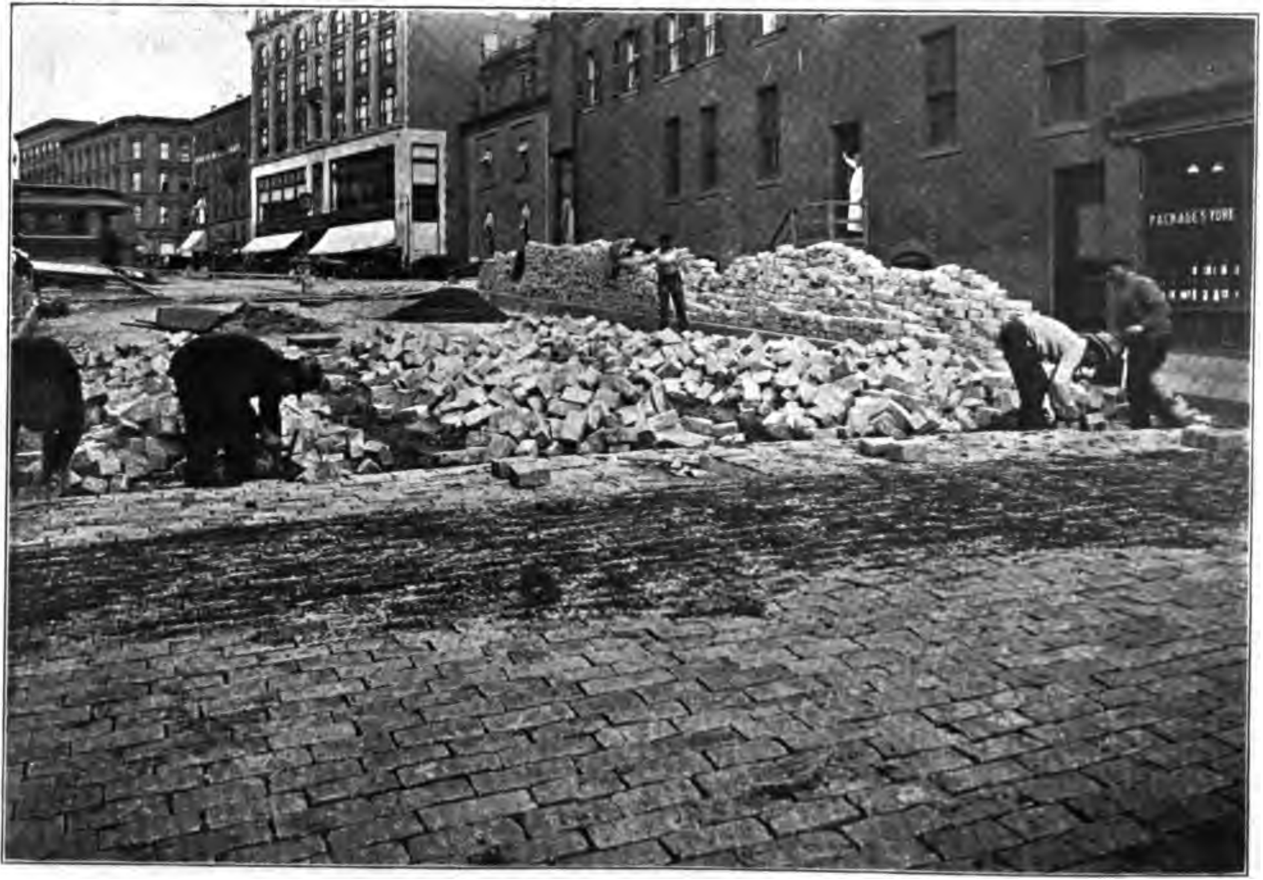
The total length of paved streets is 13.52 miles.

PAVING REPAIRS.

All repair work, whether consisting of worn places or cuts, is done under the supervision of this department. All worn places which appear in the asphalt pavements before the guarantee expires (usually five years) are repaired by the company which laid the pavement, and at its expense. In the case of cuts made in installing new duct lines, enlarging mains, or sewer connections, the paving contractor is paid directly by the parties responsible for the cuts.



TRUMBULL STREET
Placing Concrete Foundation for Granite Block Pavement



TRUMBULL STREET
Laying the Blocks

During the past year $2,963.00 was expended for repairs by the city on paved streets. This amount proportioned over the 298,891.72 square yards of such pavements which existed in the city at the beginning of the last fiscal year gives approximately one cent as the average cost per square yard for repairs. This also includes repairs made in granite block pavements.

PAVING PROPOSED FOR 1916.

In accordance with an act passed by the last session of the Legislature, the city may now lay two miles of improved pavement without petition from the abutting property owners. The streets upon which this mileage of pavement will be laid the coming season are as follows: Church Street, Trumbull Street to Union Place; the Connecticut Boulevard, State to Ferry Street; Maple Avenue, Main Street to Franklin Avenue; Albany Avenue; Magnolia Street to Woodland Street; and Park Street, Main Street to Zion Street. This pavement will all be sheet asphalt.

The sections of Main Street east and south of the South Green will be resurfaced during 1916.

CUTTING BACK CURB CORNERS.

During the past year the following curb corners were cut back to curves of longer radius: Main Street and Mulberry Street, both corners; Main and Windsor Streets, west corner; Union Place and Allyn Street, north corner; Retreat Avenue and Jefferson Street, southwest corner; Edgewood and Greenfield Streets, northwest corner; Campfield Avenue and Preston Street, northeast corner; Asylum Street and Spruce Street, west corner; Asylum and Spring Streets, both corners; Asylum and Garden Streets, east corner; Trumbull and Hicks Streets, both corners; Wethersfield Avenue at corners of all intercepting streets between Wyllys Street and Bond Street.

Extra land was required for curb-corner improvements and was given by the property owner at the northeast corner of Prospect Avenue and Park Street, and at the intersection of Jefferson Street and Retreat Avenue.

The policy of cutting back curb corners is one meeting with general approval, as it makes for improved traffic conditions, and this work should be continued wherever opportunity presents.

TRACK WORK DURING 1915.

Tracks were overhauled, brought to a new grade, and partly renewed on Wethersfield Avenue from Wyllys Street to Bond Street. In connection with this work, new special work was installed at the entrances to the car barns.

The single track on Fairfield Avenue was moved from the west side of the street to the center and laid to a new grade. New double track construction was installed from New Britain Avenue southerly about 750 feet, and a new turnout placed just south of White Street.

New rails were installed in the single track on Prospect Avenue between Park Street and Farmington Avenue, and laid to a line midway between curbs and to a new grade.

New special work was installed at the intersection of Park Street and Prospect Avenue.

New rails were laid on Main Street between Buckingham Street and Engine House No. 1.

STREET RAILWAY CONSTRUCTION PROPOSED FOR 1916.

The Connecticut Company plans to do the following work in Hartford during the coming season: Overhaul and adjust for line and grade, tracks on the Connecticut Boulevard from State to Ferry Street; partly renew and bring to new grade, tracks on Albany Avenue between Magnolia and Woodland Streets; renew rails in both tracks in Maple Avenue from Main Street to Franklin Avenue; double track the

Capitol Avenue line across the new bridge between Park Terrace and Sigourney Street; double track the Park Street line between John Street and Laurel Street, and in connection with this work, install new special work at Main Street, Lafayette Street, Zion Street and Laurel Street; renew the crossover on Capitol Avenue just west of Babcock Street.

UNDERGROUND CONDUITS.

Owing to the large number of new streets recently opened, many locations for pipes and conduits have been assigned during the past year. No underground maps have as yet been made for these outlying streets since the different corporations are assigned definite locations according to a system for pipe and duct layouts on residential streets, recently formulated by this department. This system simplifies the assigning of locations and should prevent future congestion. A card catalogue is now being used in connection with these underground records, each corporation having a separate card for every street. The information on these cards gives the street, or the particular block of the street, the corporation laying the pipe or conduit, the location of the center line of the conduit from the curb, the size of the pipe or conduit and the date the location is assigned.

Over thirty new underground maps were made the past season and all maps previously made were brought up to date. Maps showing the locations of the underground structures in the streets to be paved during the season of 1916 were also made, and new locations, where needed, were assigned sufficiently in advance of the contsruction work to allow the backfill in the trenches to thoroughly settle before the concrete base for the new paving was laid.

There are now about ninety underground maps showing the locations of pipes and ducts as correctly as it is possible to locate them. Nearly all of these maps are of streets in or near the center of the city.

TRAFFIC GUIDES.

One traffic guide or isle of safety was built in 1915 at the intersection of Broad Street and Farmington Avenue. The base or platform is composed of Leete's Island pink granite. This, in connection with a lamp standard similar to, but slightly lower than the one in use on the isle of safety at the Tunnel, presents a very pleasing appearance.

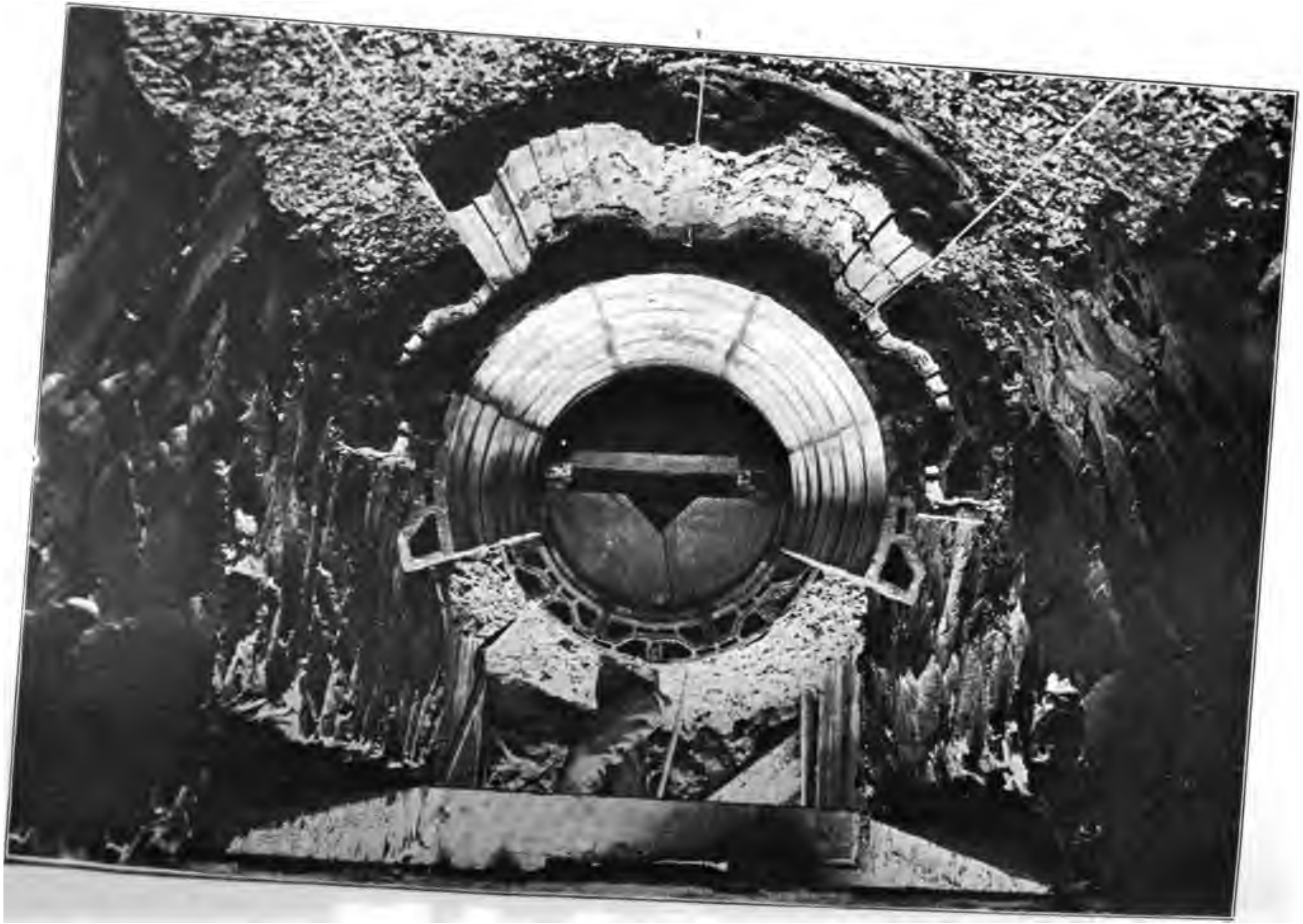
STATE HIGHWAY IMPROVEMENTS WITHIN CITY LIMITS.

Only one improvement of this character was undertaken during the past season, that on Maple Avenue between Campfield Avenue and the city line. A portion of the expense of this work was assumed by the city, but the contract was let by and carried out under the supervision of the State Highway Department. A reinforced concrete pavement, averaging 7 inches in thickness and 18 feet in width was laid.

SEWER AND BRIDGE DIVISION.

The tables appended to this report give a list of all sewers laid the past year, together with data concerning their construction and cost.

Of the total expenditure of $111,251.06, $34,727.74 or 31.2 per cent. was for completing the Maple Avenue system and $20,832.09 or 18.8 per cent. for completing the extension of the Homestead Avenue interceptor, which means that of all money expended, 50 per cent. went toward these two systems, the remaining 50 per cent. being expended on miscellaneous sewers. Construction work on these sewer systems was begun during the fiscal year 1914-15 and during that year 95.9 per cent. of all expenditures for sewer construction was for these projects, and only 4.1 per cent for miscellaneous sewers.



80-INCH TILE BLOCK SEWER IN WESTBOURNE PARKWAY

It might be interesting to note a little of the history of this Maple Avenue sewer system, giving the various stages in the layout and assessment. This shows that a large sewer system may receive many setbacks and several years may elapse before its construction is authorized.

The petition for a trunk sewer in Maple Avenue was received in May, 1911. Designs and estimates of cost were made for both separate and combined system of sewers for all territory between Fairfield Avenue and Campfield Avenue, from Mountford Street to the city line. This entailed a great deal of investigation, including surveys and a report was made by the City Engineer to the Board of Street Commissioners on January 31, 1912. A hearing was given to property owners on February 7th in order to obtain their views for or against sewers in this neighborhood, and as sentiment favored the sewers, a layout was sent to the Court of Common Council on April 15, 1912.

After holding a hearing on the layout on May 1st, a detailed assessment was published on June 21st, and a hearing on the assessment was held July 17th. Opposition developing, it was considered by the Council and a hearing was held on November 18th by a committee from that body. After further consideration, it was decided that a proposition for the city to appropriate $35,000 toward the construction of this sewer system should be submitted to the voters at the spring election of 1913. This appropriation was passed and a new assessment based on this published April 10, 1913. Remonstrances to this were received and another hearing was held April 30th and on May 12th the assessment was sent to the Council for publication. An appeal was taken by one of the property owners to the Court of Common Pleas, which court made a slight revision, reporting on February 18, 1914. The revised assessment was then passed by the Council and the construction of the work authorized on March 23, 1914. It will be seen that from the time of the layout of this system until the work was authorized nearly two years had passed.

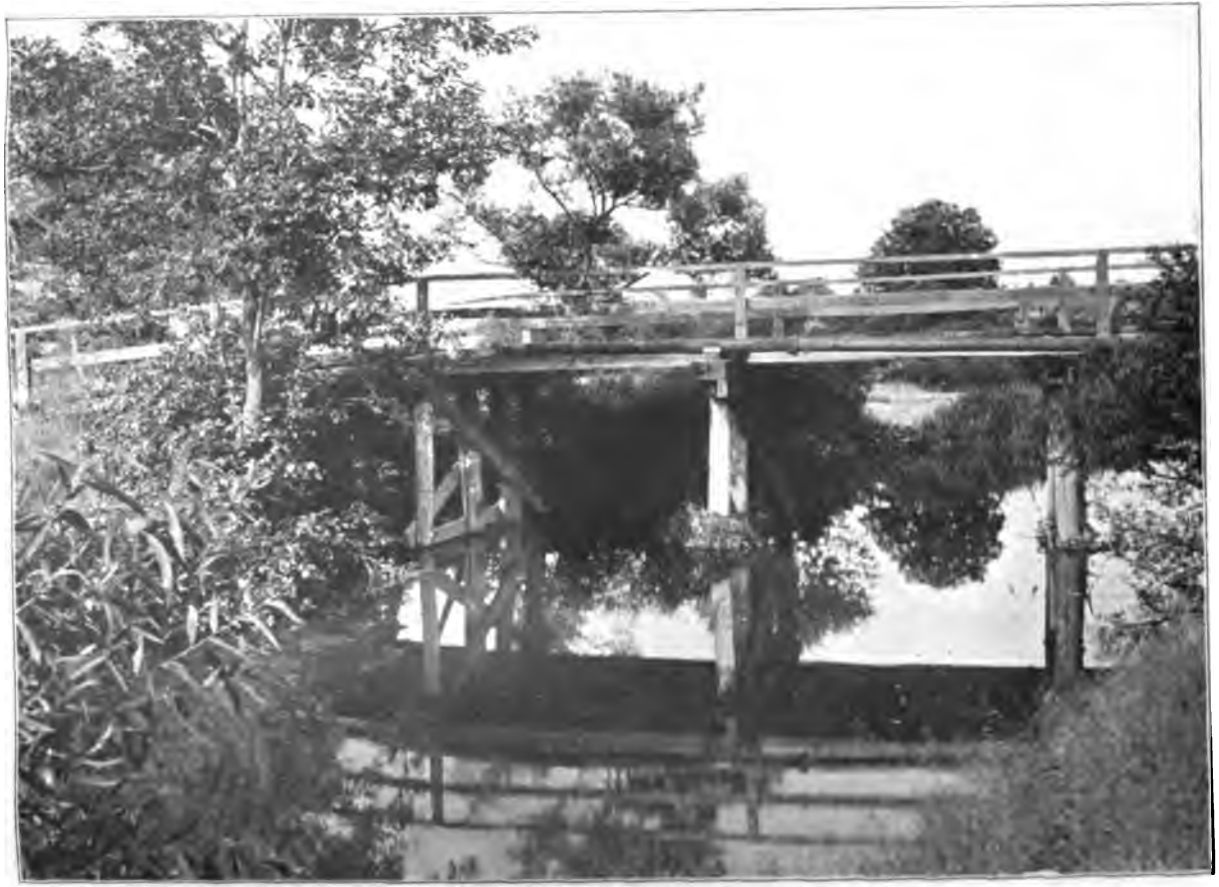
The work was divided into sections, contracts let, and the actual construction begun on May 13, 1914, and entirely completed on November 20, 1915. The final assessment, based on the actual cost of construction, and showing what each property owner must pay was sent to the Council on November 22, 1915.

The extension of the Homestead Ave. interceptor ends at the intersection of Granby and Uphill Sts., and provides an outlet for the system of sewers fromUphill St. to city line west of Blue Hills Ave. which will be built the coming year.

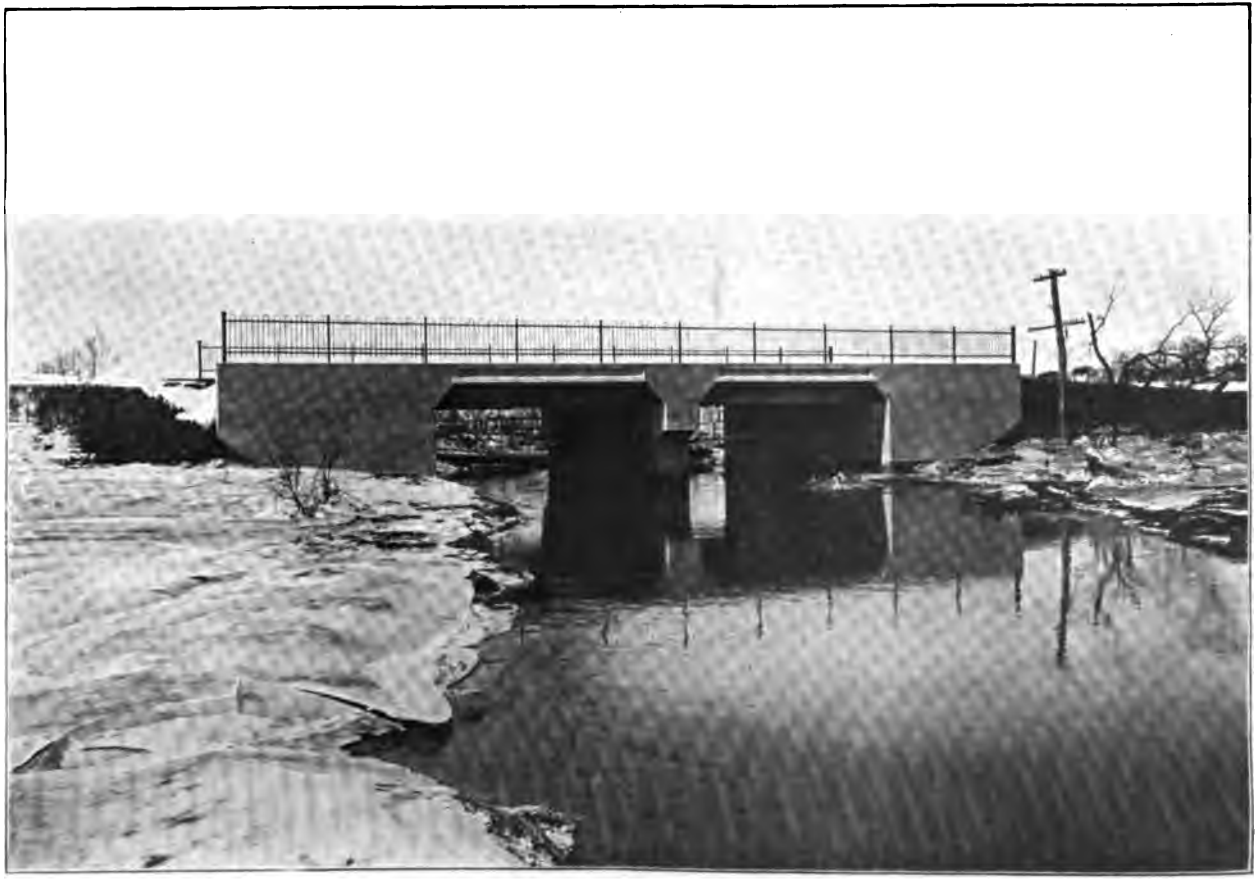
Other work contemplated this year is the enclosing of Gully Brook from Liberty Street northerly; the construction of the South Street relief sewer from Franklin Avenue across Wethersfield Avenue to the meadow ditch; and sewers in Bolton Street; Lewis Street; Ann Street from Allyn Street to a point 350 feet north of Chapel Street; Park Street from Hudson Street to Washington Street; Pleasant Street from Windsor Street to Winthrop Street; Winthrop Street; Earle Street; Tower Avenue from Windsor Avenue to near Barbour Street; and in Addison, Rosemont, Greenwich, Melrose, Cambridge and Ashford Streets, the six last named being in the tract of land west of Windsor Avenue and north of Tower Avenue.

On account of high water in the Connecticut River, very litle work was done on the South Meadow ditches and it is hoped that this year conditions will be such that this work may be completed.

A contract has been let to the Goulds Manufacturing Company of Seneca Falls, N. Y., to furnish and install two 12-inch electrically-driven centrifugal pumps at the Sheldon Street sewer pumping station. Of the present equipment at this station, consisting of two 6-inch centrifugal pumps, one electrically-driven and one steam-driven, the latter will be removed to make room for the new pumps; a new suction-well will be built and sewage screens installed. This work will be done during the summer and will increase the capacity of this station from about 1,600 gallons per minute to 6,800 gallons per minute.



WOODEN BRIDGE AT NEWFIELD AVENUE
Originally Constructed in 1873 - Replaced by Reinforced Concrete Bridge in 1915



NEW BRIDGE OVER PARK RIVER AT NEWFIELD AVENUE

BRIDGES.

During the past year contracts were let for three bridges across the Park River.

One, at Newfield Avenue, consisted of a concrete beam and slab bridge 94 feet long overall and 43 feet wide, providing a roadway 30 feet wide and two sidewalks each 6 feet wide. There are two spans each 25 feet in the clear and a center pier 4 feet wide. Borings taken here penetrated 60 feet through clay and accordingly wooden piles were driven for the foundations. The contract for the entire structure with the exception of the iron railing was awarded to C. A. Sibley of New Haven, the railing being furnished and erected by the Anchor Post Iron Works. This bridge was completed in January, 1916, at a total cost of $7,901.87.

The widening of Jewell Street and the consequent shifting of the course of the Park River at Trumbull Street made necessary the construction of a new bridge here to take the place of the iron one erected in 1864, according to the record in Geer's directory. Plans were prepared for a reinforced concrete arch bridge with brownstone facing and balustrades, the arch to be a true ellipse of 75 feet span, and 13 feet wide. After consideration by the Board of Park Commissioners, Mr. A. Raymond Ellis was employed as consulting architect. In August the contract was let to The Spaulding Construction Co. of Suffield, Conn. The bridge was completed up to the sidewalk level in December, and work was then shut down until this spring when the remaining part will be done.

The new bridge at Capitol Avenue will consist of three reinforced concrete arches, the piers, abutments, and spandrel walls to be faced with brownstone, and the railings to be all of the latter material. For supporting the trolley wire, it is planned to have reinforced concrete poles surmounting the solid portions of the railing, and to be colored to match the brownstone. There will be four on either side of the bridge and they will also serve as supports for the lamp-brackets.

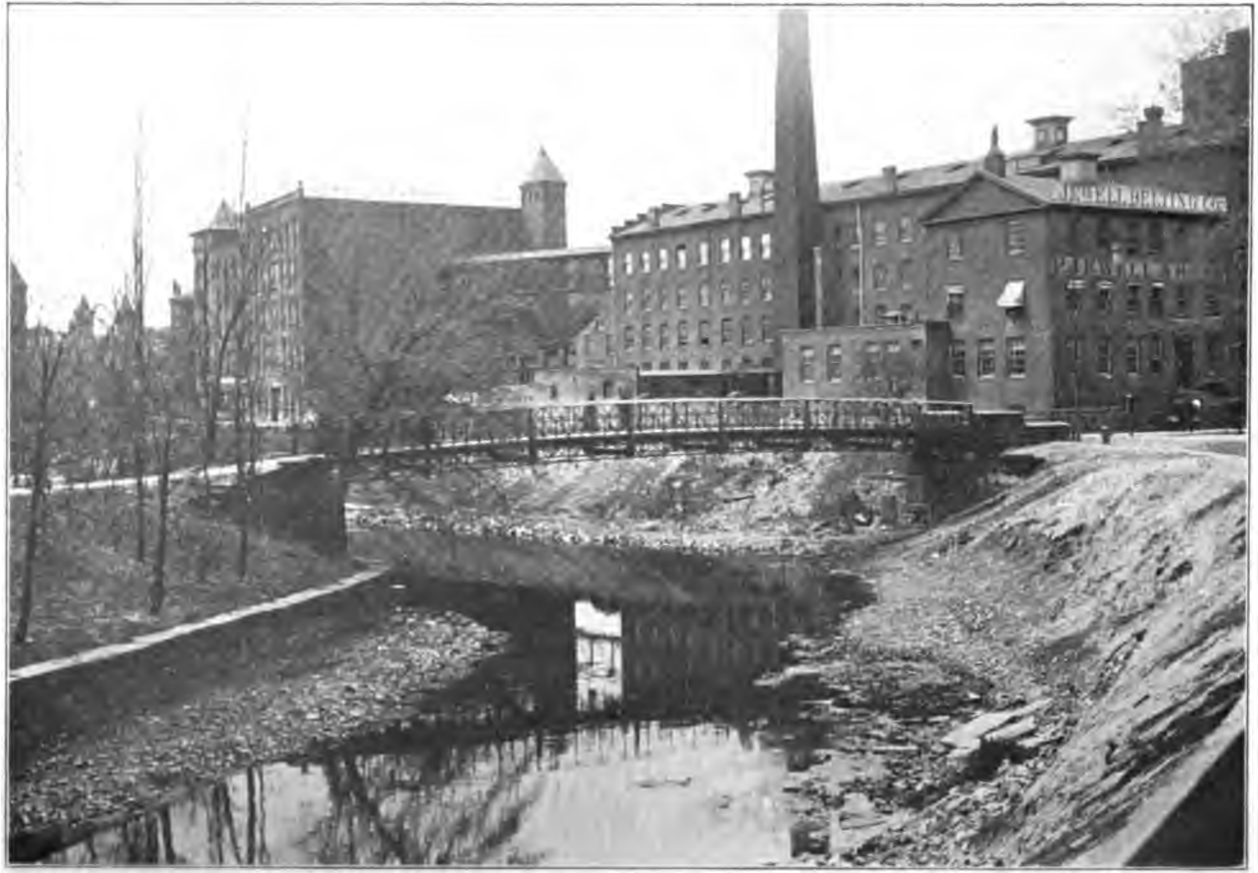
Whereas the old steel bridge gave a clear width of roadway of about 24 feet, the new one will be 38 feet between curbs, and give a sidewalk 6 feet 8 inches on each side. Work was begun here in September and the two abutments and a portion of one pier were built during the fall, keeping the old bridge in use during this time. During March, work was begun upon the construction of a temporary bridge to care for pedestrians, vehicles and trolley traffic, and when this is completed, the old bridge will be removed and construction on the new bridge resumed. The city appropriated $35,000 for this improvement and in addition, the Connecticut Company donated $6,000 in consideration of the bridge being constructed to accommodate a double track car line to supersede the single track in use on the old bridge.

CULVERTS.

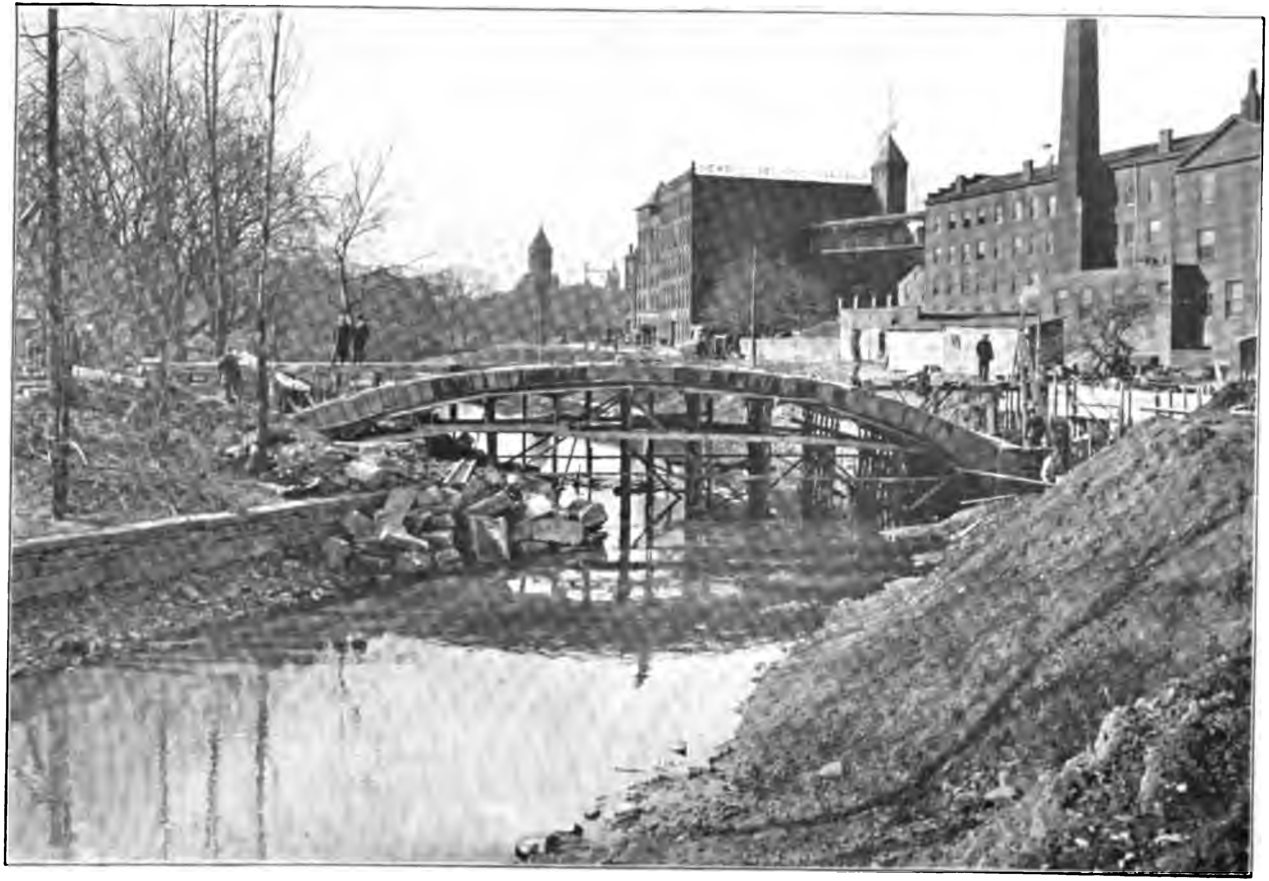
Two culverts were built during the year, one enclosing Folly Brook on Montowese Street, the other being in Grand Avenue at Cemetery Brook. Both were 50 feet in length, built of reinforced concrete, of rectangular section, the former being 5 feet 6 inches high by 9 feet wide and the latter 7 feet high by 6 feet 6 inches wide.. The Folly Brook work cost $799.71 and that at Grand Avenue $923.80, both being constructed by C. H. Slocomb & Co.

SURVEY DIVISION.

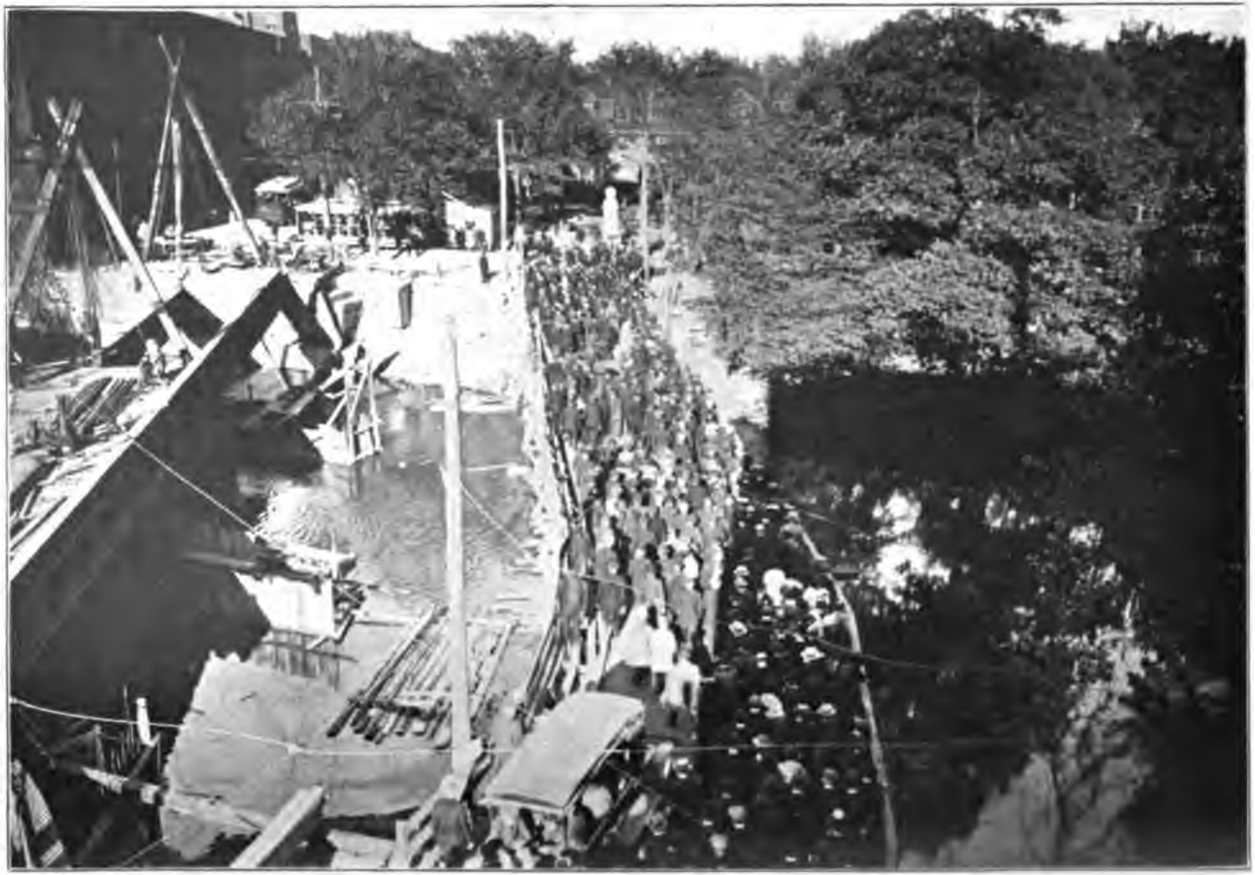
During the past year the usual variety of work was handled by this division. From April until December the activities of the Street Department require a large portion of the time, as practically all of the engineering necessary in connection with new and repair work done by the city's men employed on the street work is assigned to this division. Lines and grades are given for all street grading, for



IRON FOOT BRIDGE OVER PARK RIVER AT TRUMBULL STREET
Erected 1864 — Replaced by Reinforced Concrete Bridge 1915



TRUMBULL STREET FOOT BRIDGE UNDER CONSTRUCTION



FACTORY EMPLOYEES CROSSING TEMPORARY BRIDGE OVER PARK RIVER AT CAPITOL AVENUE the installation of catch basins, location of pole lines, for sidewalk and curb construction, and similar work. Many matters referred by the Board of Street Commissioners for examination and report requiring work both in the field and in the office are also handled by this division.

Many calls for work of an engineering nature were received from the Board of Park Commissioners in connection with new construction and changes which are constantly taking place in the several parks.

Throughout the year surveys, plans and profiles were made for the layout and acceptance of new streets and for changes in street, building and veranda lines and grades in existing streets, such work being done on petitions from individuals or on recommedations of the Board of Street Commissioners or the Commission on the City Plan.

MERESTONES.

Each year additional merestones are set to define the street lines on newly accepted street and on existing streets as needed. These stones of reinforced concrete are manufactured at the City Yard on Sheldon Street by employees of this department who afterward set them in position at the designated points.

One hundred merestones were made last season, sixty of which were set at various street intersections.

NEW STREETS.

Layouts were prepared for the acceptance of the following new streets:

Addison Street from Tower Avenue to Rosemont Street.
Ashford Street from Windsor Avenue westerly.
Auburn Street from Westland Street to Winchester Street.
Bristol Street from Newington Avenue to the city line.
Cambridge Street from Windsor Avenue to Rosemont Street.
Campfield Avenue from Preston Street to South Street.
Earle Street from Windsor Avenue to Barbour Street.
Eastford Street from Westland Street to Love Lane.
George Street from South Street to Victoria Road.

Grant Street from New Britain Avenue to Stafford Street.
Greenwich Street from Tower Avenue to Rosemont Street.
Hoadley Place from Church Street northerly.
Mansfield Street east from Vine Street to Enfield Street.
Melrose Street from Tower Avenue to Rosemont Street.
Montrose Street from New Britain Avenue to Stafford Street.
Rosemont Street from Windsor Avenue to Cambridge Street.
Roselyn Street from New Britain Avenue to Stafford Street.
Stafford Street from Newington Avenue to city line.
Stanwood Street from Montrose Street to city line.
Winchester Street from Vine Street to Enfield Street.

NEW STREET AND BUILDING LINES.

Layouts were prepared for new street, building and veranda lines to supersede existing lines on the following streets or on portions of the same:

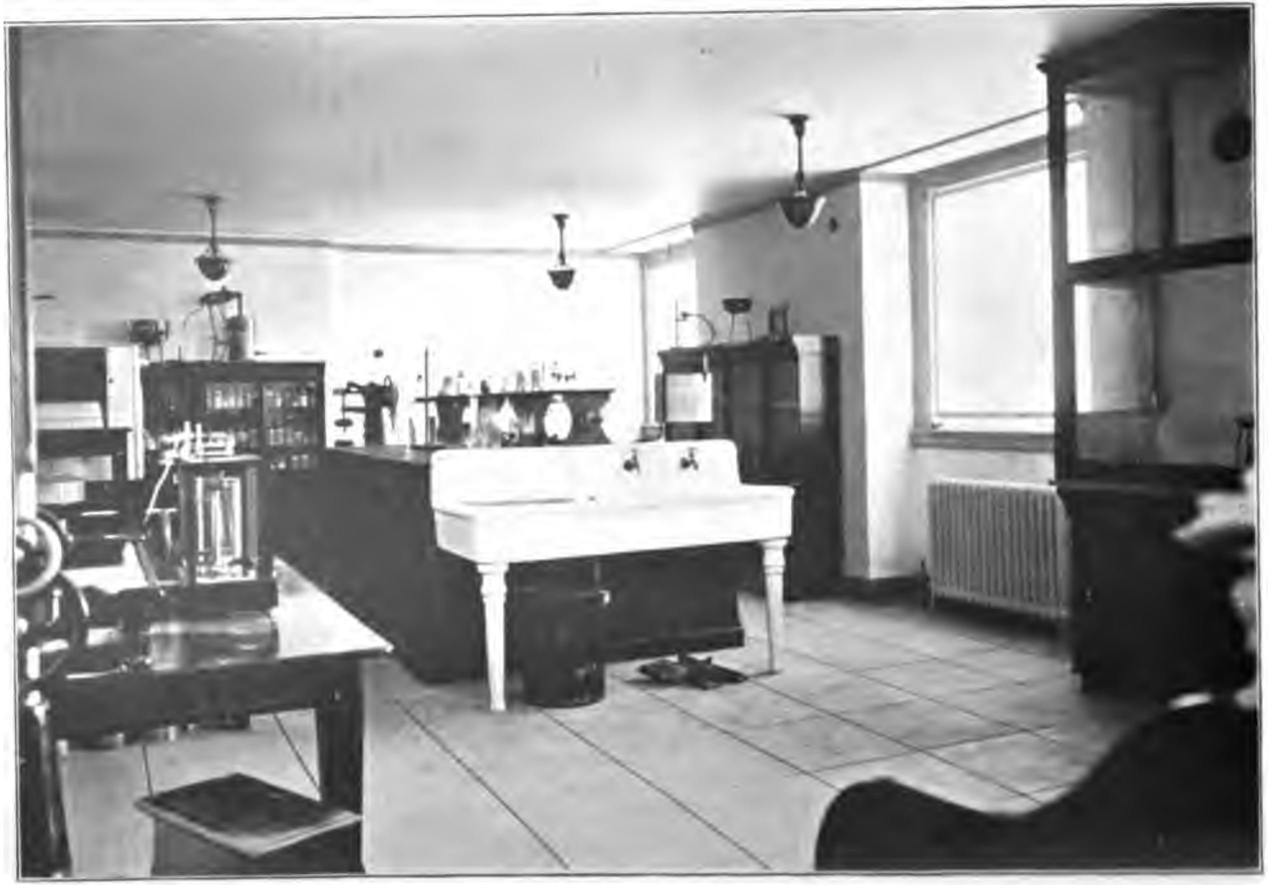
Asylum Street, Bolton Street, Capen Street, Capitol Avenue, Cornwall Street, Church Street, Ely Street, Flower Street, Franklin Avenue, Griswold Street, Hillside Avenue, Kenyon Street, Kelsey Street, Ledger Street, Maple Avenue, Palm Street, Prospect Avenue, Riverside Street, Sanford Street, Seyms Street, Village Street, Wadsworth Street, Westland Street, Windsor Avenue, Woodbine Street.

NEW GRADES.

New grades were established to supersede existing grades or portions of the same on the following streets: Albany Avenue, Church Street, Enfield Street, Greenfield Avenue, Maple Avenue, and Prospect Avenue.

SIDEWALK AND CURB LINES.

Layouts were prepared for the establishment of sidewalk and curb lines on the following streets and avenues: Atheneum Street South, Addison, Barker, Blake, Bolton, Bonner, Bradford, Brown, Campfield, Chapman, Chester, Cheshire, Church, Cromwell, Douglas, Euclid Street West, Fairfield, Fairview, Fenwick, George, Gilman, Greenwich,



LABORATORY — DEPARTMENT OF ENGINEERING

Griswold, Hamilton, Harwich, Harold, Hartland, Hebron, Henry, Homestead, Kelsey, Linnmoore, Litchfield, Manchester, Maple, Melrose, Morningside, Orchard, Oliver, Pleasant, Preston, Prospect, Palm, Roxbury, Roger, Roosevelt, Regent, Rosemont, Salem, Sharon, Terry Road, Tower, Torwood, Village, Water, Winchester, Windsor, White, Waren and Wilton.

CHEMISTRY AND TESTING DIVISION.

During the year 1915 the various tests on municipal supplies, such as coal, asphalts, cements, sands, oils, rubber hose, and tree spraying compounds were made by the laboratory maintained by this department. The number of tests aggregated approximately two hundred and forty, the greatest number of them being on asphalt for the plant control. Nearly fifty days were spent at the two asphalt plants which operated this year.

Early in the year our laboratory equipment was increased by the addition of a piece of apparatus called the Dulin Rotarex. By the use of this machine we can determine the proportions of asphaltic cement, sand, and limestone dust in a mixed batch of asphalt topping within one hour after it leaves the asphalt mixer at the plant. The machine is operated by an electric motor and the separation of the asphaltic cement from the mineral aggregate (sand and limestone dust) is accomplished by means of carbon tetrachloride as a solvent and the centrifugal force of the extractor, which rotates at about four thousand revolutions per minute. The old method necessitated the solution of the asphalt topping mixture in carbon tetrachloride and letting it stand for twenty-four hours and then filtering through a filter paper. In this manner much time was lost and time is an important factor in this operation since it is often necessary to know at once what sort of an asphalt topping mixture a contractor is putting out when he first starts operations. We find this new piece of apparatus a very valuable help, especially in connection with the asphalt work.

In the latter part of the year 1915 the laboratory was moved from the old City Hall to the fourth floor of the new Municipal Building where a large light airy room has been fitted up for use. The location of the new laboratory will undoubtedly tend toward much better work as the old place was damp, dark and generally unsatisfactory.

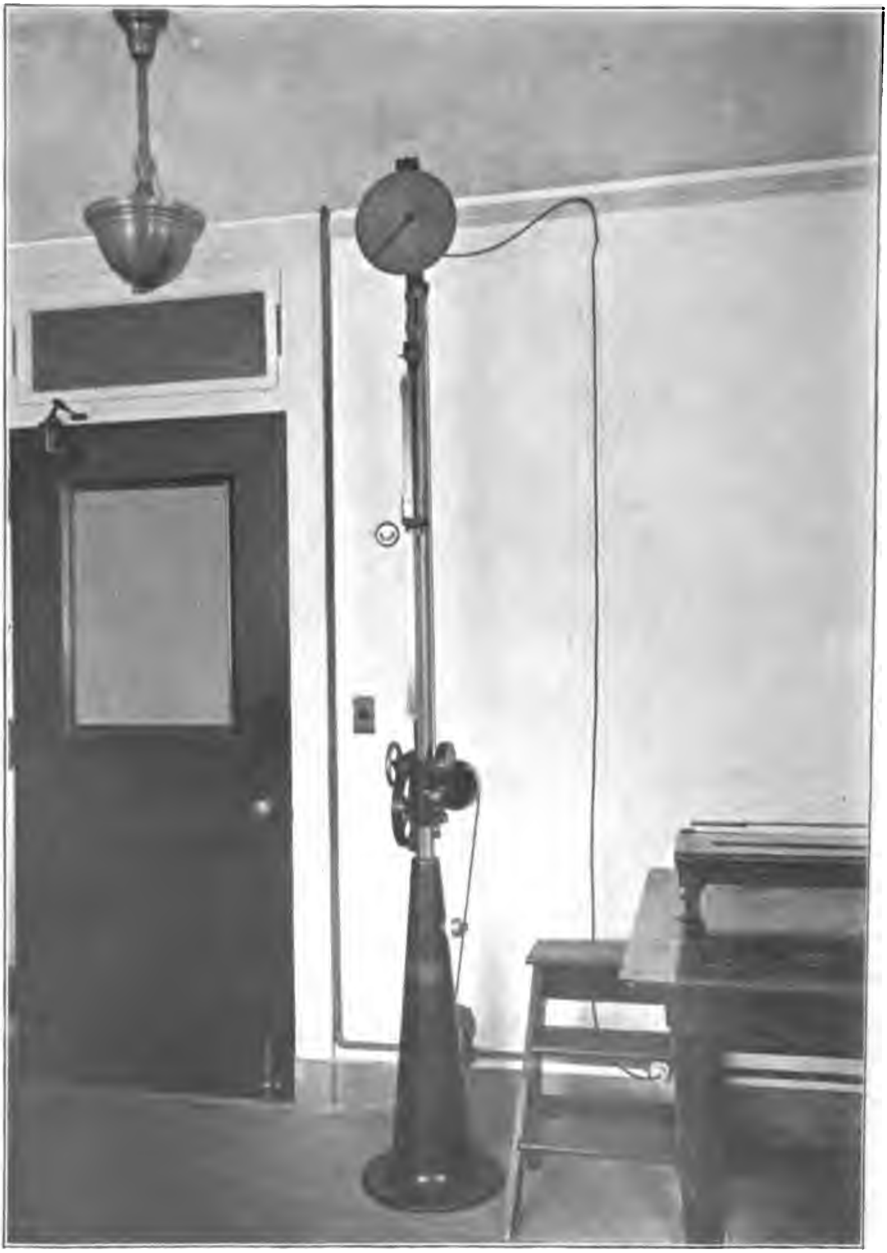
Since being located in this new laboratory a Freas constant temperature electric oven has been installed which was a much needed piece of apparatus, also a United States Bureau of Standards model Dynamometer for the testing of the tensile strength of the rubber lining of fire hose.

A thousand dollars has been appropriated to purchase further supplies and equipment the coming year, and it is the aim of the Department of Engineering to make the testing and chemical laboratory perfectly equipped to examine the various materials that enter into municipal construction work.

It has been the custom in the previous annual reports to give a description of one of the important materials chemically and physically tested in this laboratory. The following is a short description of the origin and treatment of rubber in the course of its becoming a manufactured article.

Rubber in its crude state is the congealed milky juice or latex of numerous species of plants, shrubs and vines which find their habitat in the tropical countries, such as Mexico, Central America, Brazil, Africa and the East and West Indies. Large quantities of rubber are gathered by natives from trees in the wild state and much is produced on rubber plantations where the rubber tree is cultivated according to scientific principles. This product is usually called "plantation rubber."

The milky juice or latex is collected in small cups from the trees in which an incision has been made in the bark. The native custom for coagulating or drying the latex is by exposure to smoke or simply drying in the air. Plantation rubber is cured by several means, principally by the use of



RUBBER TESTING MACHINE FOR DETERMINING TENSILE STRENGTH OF RUBBER SAMPLES organic acids after which it is washed and rolled into sheets dried and sometimes smoked to acquire the valuable properties of the wild rubber such as is collected by the natives.

Rubber reaches the market in various forms, such as crude biscuits, balls, hams, or washed sheets. The United States requires about half of the total world supply for its manufactured rubber. The total supply in 1914 was approximately 125,000 tons.

The crude rubber on reaching the rubber goods factory is first washed, if it has not been washed at the plantation, to remove the sand, wood, leaves, bark, and water soluble impurities. It is then sheeted or creped and dried, usually in a vacuum drier after which it can be directly used in the mixing mill. The mixing is done according to formulae which are best suited for the goods produced by each factory. The materials used are rubber, fillers, coloring matter, sulphur carriers and sulphur. The sulphur is of great importance as it is added to the rubber for vulcanization and after this the product has greater strength and elasticity.

The above materials are passed through the mixing rolls which can be either heated or cooled by means of steam or water as is needed. The material becomes plastic and sticks to one roll from which it is cut off and folded and passed through the rolls until it becomes a homogeneous mass.

It is now rolled into sheets for some purposes in a machine called a calendar, after which it is made into the desired article and is ready for vulcanization. The vulcanization of rubber was discovered by Charles Goodyear of New Haven, Conn., in 1839, and this practically marks the beginning of the rubber industry. Previous to that time rubber was little used except for waterproofing.

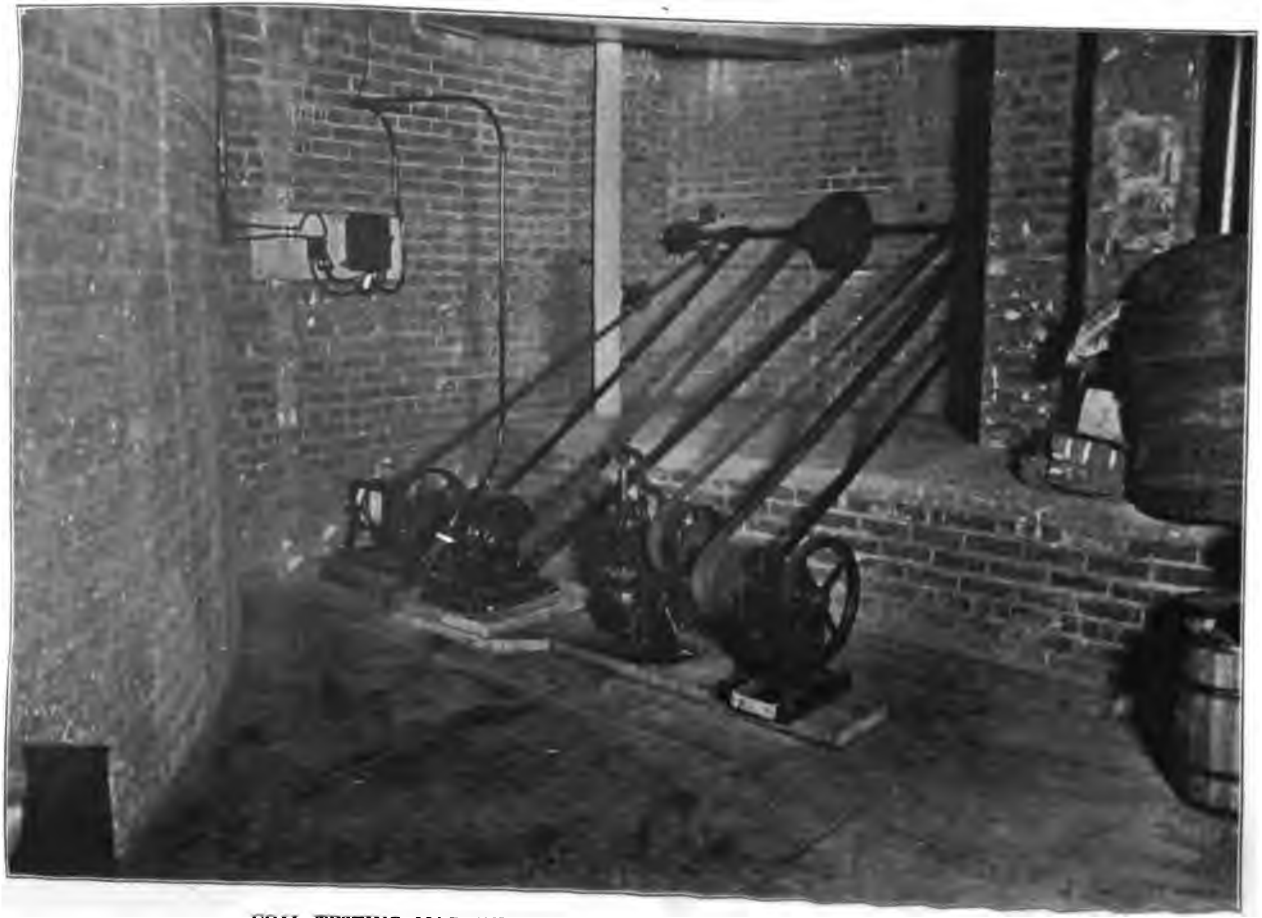
The vulcanization of rubber goods consists of heating the article after it is completely formed and finished to such a temperature that the sulphur combines with the rubber. Large amounts of sulphur, when added to rubber and then vulcanized, form hard rubber, sometimes called ebonite.

In the chemical analysis of rubber products, the determination of ash, acetone extract, free sulphur, alcoholic potash extract, fillers and rubber gum is made. In addition to the above chemical tests, various physical tests are made such as tensile strength, permanent set, thickness, etc.

WIDENING OF IMPORTANT STREETS.

During the past year several attempts have been made to widen certain streets which are congested at the present time or are certain to become so in the near future. The City of Hartford is very conservative in this regard and many much needed improvements have met with considerable opposition. While appreciating the sentiment of many abutting property owners, which, unfortunately, prevents for the time being, a full realization on their part of the great material advantages of wide streets, I believe that in questions of this kind the needs of the city at large should be the governing consideration. The widening of a main artery of travel leading to and from the city, or the widening of almost any narrow street in the center of the city is an improvement to the city at large, and one toward which the city can well afford to pay a liberal portion of the damages occasioned by such widening. The feeling of many property owners, that the assessment of benefits for an improvement is likely to offset the damages awarded for the taking of the necessary land, and to cover the costs of making the necessary physical changes to the property, is largely responsible for this personal opposition to any scheme which takes from them something which they possess and for which they have had to pay.

I feel that in most cases when property owners state that they cannot see any enhancement to the value of their properties to offset the damages caused by the improvement they are sincere in their statements and beliefs. The city officials who prepare the schedule of damages and assessments for these improvements are, from long experience and observation in these matters, generally in a better position to predict the future effect of the improvements on



COAL TESTING MACHINES FOR CRUSHING AND PULVERIZING SAMPLES the abutting properties than are the owners themselves, and consequently most assessments are logical and fair to all parties affected. But rather than having necessary improvements defeated I feel that in many cases the city would be justified in assuming a portion of the expense of the assessment sufficient to offset the opposition, even if this portion appeared greater than the city should reasonably bear.

CONNECTICUT RIVER FRESHETS.

I desire at this time to again urge your honorable court to arrange for the continuation of the work of protecting the low lying portions of the city from the damage due to freshets in the Connecticut River. The dyke formed by the new railway embankment north of Morgan Street and carrying Connecticut Boulevard south of Morgan Street to State Street, should be extended southerly along the line of Commerce Street to meet the so-called Colt Dyke at Sheldon Street. I believe that it is not only feasible but would prove also to be economical to extend Colt Dyke southerly from the corner of Wawarme Avenue and Van Dyke Avenue along the bank of the Connecticut River to the city line and thence westerly to the ridge which passes Wethersfield Avenue, thus reclaiming hundreds of acres of land from which little if any return is now had.

I desire to make grateful acknowledgement of the many courtesies extended by the various departments and officials and to express appreciation of the support and co-operation of those associated with me in the work of the department.

Respectfully submitted,

ROSCOE N. CLARK,
City Engineer.

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916.

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	Part Paid by Others	REMARKS
						No.	Length							
aple Avenue Sewer System—Section "A"		O'Neil Brothers							$567.17					Cleaning up work.
Section "D" rivate lands	Maple Ave. to Broad St., opposite Preston St.	Antonio Lambo	51	Concrete	367.9			1						Begun prior to April 1, 1915, data given here for work done since that date only. See also table for 1914–1915.
road Street	Between White St. and Mountford St.	Antonio Lambo	20 18 10 42 30	Tile Tile Tile Concrete Concrete	882.3 411.7 428.0 612.8 96.0	63	945	8	12,016.20					
ection "F", Maple Ave.	Connection at Goodwin Park	The W. T. Ryan Cons. Co.				1	30							*Maple Avenue Sewer System:* Cost given 1914–15 table, $123,578.77 Cost given here, ... 34,727.74 Total cost of system, ... 158,301.51 Of this the City paid ...... 37,049.99 Assessed on property, ... 121,251.52
radford Street	Roxbury St. northerly 670 feet	The W. T. Ryan Cons. Co.	12 10	Tile Tile	370.7 298.6	26	390	3						
radford Street	Henry St. westerly to above	The W. T. Ryan Cons. Co.	18 10 8	Tile Tile Tile	401.3 539.8 239.2	30	450	5						
arwich Street	Roxbury St. to Bradford St.	The W. T. Ryan Cons. Co.	15 12 10	Tile Tile Tile	412.0 358.6 358.1	48	645	4	20,823.70					
enry Street	Roxbury St. to Bradford St.	The W. T. Ryan Cons. Co.	24 20 8	Tile Tile Tile	1002.9 247.4 97.8	50	750	5						
ewbury Street	Roxbury St. to Bradford St.	The W. T. Ryan Cons. Co.	15 12 10	Tile Tile Tile	356.7 331.9 323.5	38	570	4						
oxbury Street	Broad St. to Fairfield Ave.	The W. T. Ryan Cons. Co.	24 20 18 12 8	Tile Tile Tile Tile Tile	368.3 267.0 290.2 288.4 202.8	33	495	6						
nspection and Miscell.									1,320.67					

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	Part Paid by Others	REMARKS
						No.	Length							
tension of the Homeste	*ad Ave. Intercepting Sewer:*													
estbourne Parkway	Albany Ave. to Granby St.	C. H. Slocomb & Co.	30 36x45	Block B. & C.	48.5 8.4				$20,832.09	$19,509.25	$1,322.84			Begun prior to April 1, 1915.
ranby Street	Westbourne Parkway to Uphill Street	C. H. Slocomb & Co.	42 36 30x40	Block Block B. & C.	10.6 221.9 1250.0			5						Cost given 1914–15 table, $60,490.00 Cost given in this table,... 20,832.09 Total cost to date,........ 81,322.09
delaide Street	Maple Ave. to Campfield Ave.	Rocco Branciere	8	Tile	145.2	1	17	1	170.00			170.00		Cost estimated.
ffleck Street	Lincoln St. to Madison St.	Rocco Branciere	8	Tile	175.0	1	17	0	131.25			131.25		
nsonia Street	Hillside Ave. to Fairfield Ave.	A. W. Bryne	12 10	Tile	311.4 607.4	26	390	4	1,698.88		1,698.88			
nsonia Street	Crossing private lands north of, near Fairfield Ave.	A. W. Bryne	8	Tile	90.8				107.00		107.00			
roadview Terrace	350 feet south of Dart Ave., northerly to Dart Ave.	Louis Rogers & Co.	12 10	Tile Tile	111.4 235.2	11	165	2	607.04		607.04			
urlington Street	Cornwall St. easterly 570 feet	N. C. Casciano & Co.	12 10	Tile Tile	250.0 320.0			2	3,750.00			3,750.00		Cost estimated includes Hebron and Sharon Sts. below.
anton Street	Windsor St. to Wooster St.	P. Bonadies & Co.	24 18	Tile Tile	57.0 613.3			4	2,534.07	1,267.03	1,267.04			Replaced old sewer.
dgewood Street	Vine St. westerly 450 feet	Bonadies & Monacchio	10	Tile	454.7	7	105	2	873.69		873.69			
nfield Street	Gully Brook Int. southerly	Louis Rogers	10	Tile	170.4	5	75	2	430.00			430.00		
ranklin Avenue	Tredeau St. to City Line	O'Neil Brothers	24 20 18	Tile Tile Tile	215.0 90.8 433.8	12	248	7	9,827.25		9,485.78		341.47	$341.47 paid by the Town of Wethersfield. The cost given here includes $110.00 damages for right of way, also sewers in Montowese St., Victoria Road and private lands.

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	Part Paid by Others	REMARKS
						No.	Length							
Grove Street	Commerce St. to Front St.	O'Neil Brothers	24	Tile	573.7			6	$2,835.81	$2,835.81				Replaced old sewer.
Henry Street	80 feet north of Bradford St. to New Britain Ave.	Board of Street Commiss'rs	12	Tile	285.0			2	372.08	372.08				Built to relieve New Britain Ave. sewer.
Hebron Street	Cornwall St. to Blue Hills Ave.	N. C. Casciano & Co.	12 10	Tile Tile	99.2 868.9			4						Cost included in Burlington St. above
Hillside Avenue	White St. to Linnmoore St.	A. W. Bryne	28x42	Concrete	693.0	18	270	2	6,173.04	1,983.30	4,189.74			Cost given here includes also Kelsey and Linnmoore Sts. below.
Kelsey Street	Linnmoore St. to White St.	A. W. Bryne	12	Tile	493.3	16	250	2						
Linnmoore Street	Hillside Ave. to Roger St.	A. W. Bryne	20 18 12	Tile Tile Tile	323.3 221.3 309.5	28	430	4						
Linnmoore Street	Hillside Ave. to Monroe St.	A. W. Bryne	15	Tile	370.0	13	200	2						
Montowese Street	Franklin Ave. to George St.	O'Neil Brothers	20 10	Tile Tile	882.9 150.3	37	592	4						Cost included in Franklin Ave. above.
Mansfield Street	Gully Brook Interceptor to Vine St. Also crossing private lands southerly	Louis Rogers	24 12 10 20	Tile Tile Tile Tile	360.7 26.5 146.0 193.6	5	75	3	2,071.24			2,071.24		
Oliver Street	Hillside Ave. to New Britain Ave.	A. W. Bryne	15 10	Tile Tile	178.0 442.8	14	210	4	1,111.68		1,111.68			
Park Street	Broad St. to Zion St.	O'Neil Brothers	27 24 20 18	Block Tile Tile Tile	256.4 339.2 50.0 30.0			3	3,214.20	2,125.35	1,088.85			Not completed Mar. 31, 1916. Data given for work to that date only.
Private lands	Bloomfield Ave. to City Line	Petrossi Brothers	10	Tile	274.0			1	350.00			350.00		
Private lands	Albany Ave. northerly, opposite Terry Road	A. W. Bryne	10 8	Tile Tile	284.0 1492.0			7	1,840.00			1,840.00		
Private lands	Montowese St. to Victoria R'd	O'Neil Brothers	18	Tile	270.0									See Frank.Av. above

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	Part Paid by Others	REMARKS
						No	Length							
lgefield Street	Westbourne Parkway to Holcomb St.	E. T. Duncan	24 20 18 15 12 10	Tile Tile Tile Tile Tile Tile	295.4 416.8 1315.3 725.2 250.0 279.8	55	805	13	$10,681.54		$10,681.54			Cost given here includes Westbourne Parkway sewer.
ıron Street	Cornwall St. to Blue Hills Ave.	N. C. Casciano & Co.	12 10	Tile Tile	411.0 670.0			3						Cost included in Burlington St. above.
son Avenue	Interceptor northerly to 125 ft. South of Warrenton Ave.	J. Monacchio & Co.	10	Tile	365.9	8	48	2	878.58		878.58			
›deau Street	Franklin Ave. to George St.	Berardini Silvestri	18 15 12	Tile Tile Tile	336.1 382.3 384.4	37	555	4	2,180.00			2,180.00		
ımbull Street	Jewell St. to Pearl St.	A. W. Bryne	30 24 18	Concrete Tile Tile	128.0 285.7 10.6	10	233	6	3,136.63	1,625.19	1,511.44			Replaced old sewers.
:toria Road	Between Franklin Ave. and George St.	O'Neil Brothers	15 10	Tile Tile	262.8 660.0	38	577	4						The cost included in Franklin Ave. above.
ırrenton Avenue	Evergreen Ave. easterly	Tony Russo	8	Tile	139.3	1	6		200.00			200.00		
›stbourne Parkway	Blue Hills Av. to Ridgefield St.	E. T. Duncan	30	Concrete	797.8			2						The cost included in Ridgefield St. above.
nchester Street	Gully Brook easterly to Vine Street	Louis Rogers	10	Tile	365.6	5	75	3	517.25			517.25		
tals............	....	....	.....	....	32969.8	632	9618	176	111,251.06	39,087.48	60,182.37	11,639.74	341.47	

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916 (*Continued*).

Total length of sewers built since April 1, 1915, to March 31, 1916,	32,969.8 feet	6.24 miles
Length of sewers replaced by above,	1,770.2 feet	0.33 miles
Net increase in length of sewers in use,	31,199.6 feet	5.91 miles
Sewers in use March 31, 1915,	....	135.34 miles
Sewers in use March 31, 1916,	....	141.25 miles

SUMMARY OF MATERIALS USED IN 1915–1916.

24-inch tile,	3,497.9 feet	0.66 miles	10.6%
20-inch tile	2,854.1 feet	0.54 miles	8.7%
18-inch tile	4,333.6 feet	0.82 miles	13.1%
15-inch tile,	2,687.0 feet	0.51 miles	8.2%
12-inch tile,	4,281.3 feet	0.81 miles	13.0%
10-inch tile,	8,243.0 feet	1.56 miles	25.0%
8-inch tile,	2,581.6 feet	0.49 miles	7.8%
All sizes tile,	28,478.5 feet	5.39 miles	86.4%
Monolithic concrete	2,695.5 feet	0.51 miles	8.2%
Concrete invert and block arch,	1,258.4 feet	0.24 miles	3.8%
Vitrified segment block,	537.4 feet	0.10 miles	1.6%
Totals	32,969.8 feet	6.24 miles	100.0%

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916 *(Concluded)*.

SUMMARY BY METHOD OF PAYMENT.

New construction, cost divided between City and property owners,	2.46 miles	39.4%	$61,732.87	55.4%
Reconstruction, cost divided between City and property owners,	0.33 miles	5.3%	8,884.90	8.0%
Total	2.79 miles	44.7%	70,617.77	63.4%
Entire cost paid by City,	0.16 miles	2.6%	3,207.89	3.1%
Entire cost assessed on property, including Franklin Avenue, assessed on Town of Wethersfield,	1.85 miles	29.6%	25,678.66	23.0%
Built for private parties under Drain Layers' rules,	1.44 miles	23.1%	11,746.74	10.5%
Total,	6.24 miles	100.0%	111,251.06	100.0%

During year ending March 31, 1915,	6.61 miles of sewers were built, costing	$192,035.45
During year ending March 31, 1914,	3.31 miles of sewers were built, costing	57,395.47
During year ending March 31, 1913,	3.95 miles of sewers were built, costing	65,234.39
During year ending March 31, 1912,	3.19 miles of sewers were built, costing	113,815.90
During year ending March 31, 1911,	3.38 miles of sewers were built, costing	141,390.01
During year ending March 31, 1910,	1.60 miles of sewers were built, costing	11,756.04

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1916.

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	North side and tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Albany Avenue	East St. to 50 ft. East of Magnolia St.	Paved	Sheet Asphalt	D. T.	1.69	2.8845	Nov. 21, 1914	Nov. 21, 1919
Allyn Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	Jun. 12, 1899	June 12, 1904
Amer. & Cent. Rows	East of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Amer. & Cent. Rows	East of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum St. to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street	Spruce St. to Farm'ton Av.	Tracks relaid	Granite Block	D. T.	......	....	1911	....
Asylum Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford St. to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Asylum Street	Main St. to Spruce St.	Repaved	Sheet Asphalt	S. & D.	2.28	By City	Oct. 12, 1908	Oct. 12, 1918
Asylum Street	Spruce St. to Garden St.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Spruce St. to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Hopkins St. to Farm'ton Av	S. side resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Asylum Street	Garden St. west to Header	N. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Jun. 23, 1914	June 23, 1919
Atheneum Street	Prospect St. to Main St.	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Atheneum St., South	Main St. to Prospect St.	Paved	Sheet Asphalt	No	1.60	By City	Nov. 2, 1915	Nov. 2, 1920
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1897	....
Broad Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Capitol Avenue	Lafayette St. to Park River	Paved	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 26, 1905
Capitol Avenue	Lafayette St. to Broad St.	N. side resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Lafayette St. to Broad St.	S side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Broad St. to Park River	Both sides resurf'd	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.	......	....	1895	....

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1916 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	$2.65	By City	Dec. 6, 1911	No guarantee
Central Row	Main St. to Post Office	Paved	Block Asphalt	D. T.	3.04	$5.5600	Oct. 12, 1896	Oct. 12, 1901
Central Row	Main St. to Post Office	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Church Street	Main St. to Trumbull St.	Paved	Sheet Asphalt	No	2.59	2.1163	Nov. 8, 1897	Nov. 8, 1902
Church Street	Main St. to Trumbull St.	Resurfaced	Sheet Asphalt	No	1.67	By City	July 28, 1909	July 28, 1914
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Church Street	Union Pl. to Spruce St.	Resurfaced	Sheet Asphalt	No	1.39	By City	Sep. 29, 1913	Sep. 29, 1918
Church Street	Spruce St. westerly	Paved	Granite Block	No	3.63	4.1578	Oct. 15, 1913	Oct. 15, 1914
Farmington Avenue	Asylum Av. to Woodland St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue	Asylum Av. to Sigourney St.	Full width resurf.	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Both sides resurf'd	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1909	....
Farmington Avenue	Woodland to Tremont St.	Paved	Sheet Asphalt	D. T.	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue	Tremont St. to Prospect Av.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ford Street	Pearl St. to Asylum St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Ford Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1918
Front Street	State St. to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Front Street	State St. to Morgan St.	Paved	Sheet Asphalt	No	2.15	2.8721	Dec. 5, 1913	Dec. 5, 1918
Gold Street	Main St. to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sep. 11, 1898	Sep. 11, 1903
Grove Street	Main St. to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect St. to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1898	....
Hamilton Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Haynes Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church St. to Main St.	Resurfaced	Sheet Asphalt	No	1.27	By City	May 19, 1911	May 19, 1916
High Street	Asylum St. to Church St.	Resurfaced	Sheet Asphalt	No	0.89	By City	June 23, 1914	June 23, 1919
Hopkins Street	Broad St. to Asylum St.	Paved	Sheet Asphalt	No	2.58	2.3865	June 12, 1899	June 12, 1904
Kinsley Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916.

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	Part Paid by Others	REMARKS
						No.	Length							
aple Avenue Sewer System—Section "A"		O'Neil Brothers							$567.17					Cleaning up work.
Section "D" rivate lands	Maple Ave. to Broad St., opposite Preston St.	Antonio Lambo	51	Concrete	367.9			1						Begun prior to April 1, 1915, data given here for work done since that date only. See also table for 1914-1915.
road Street	Between White St. and Mountford St.	Antonio Lambo	20 18 10 42 30	Tile Tile Tile Concrete Concrete	382.3 411.7 428.0 612.8 96.0	63	945	8	12,016.20					
ection "F", Maple Ave.	Connection at Goodwin Park	The W. T. Ryan Cons. Co.				1	30							
radford Street	Roxbury St. northerly 670 feet	The W. T. Ryan Cons. Co.	12 10	Tile Tile	370.7 298.6	26	390	3				*Maple Avenue Sewer System*: Cost given 1914-15 table, $123,573.77 Cost given here, ... 34,727.74 Total cost of system, ... 158,301.51 Of this the City paid ...... 37,049.99 Assessed on property, ... 121,251.52		
radford Street	Henry St. westerly to above	The W. T. Ryan Cons. Co.	18 10 8	Tile Tile Tile	401.3 539.8 239.2	30	450	5						
arwich Street	Roxbury St. to Bradford St.	The W. T. Ryan Cons. Co.	15 12 10	Tile Tile Tile	412.0 358.6 358.1	43	645	4	20,823.70					
enry Street	Roxbury St. to Bradford St.	The W. T. Ryan Cons. Co.	24 20 8	Tile Tile Tile	1002.9 247.4 97.8	50	750	5						
ewbury Street	Roxbury St. to Bradford St.	The W. T. Ryan Cons. Co.	15 12 10	Tile Tile Tile	356.7 331.9 323.5	38	570	4						
oxbury Street	Broad St. to Fairfield Ave.	The W. T. Ryan Cons. Co.	24 20 18 12 8	Tile Tile Tile Tile Tile	368.3 267.0 290.2 288.4 202.3	33	495	6						
nspection and Miscell.									1,320.67					

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	Part Paid by Others	REMARKS
						No.	Length							
tension of the Homeste	*ad Ave. Intercepting Sewer:*													
estbourne Parkway	Albany Ave. to Granby St.	C. H. Slocomb & Co.	30 36x45	Block B. & C.	48.5 8.4				$20,832.09	$19,509.25	$1,322.84	Begun prior to April 1, 1915.		
·anby Street	Westbourne Parkway to Uphill Street	C. H. Slocomb & Co.	42 36 30x40	Block Block B. & C.	10.6 221.9 1250.0			5				Cost given 1914–15 table, $60,490.00 Cost given in this table,... 20,832.09 Total cost to date,........ 81,322.09		
lelaide Street	Maple Ave. to Campfield Ave.	Rocco Branciere	8	Tile	145.2	1	17	1	170.00			170.00		Cost estimated.
'fleck Street	Lincoln St. to Madison St.	Rocco Branciere	8	Tile	175.0	1	17	0	181.25			181.25		
ısonia Street	Hillside Ave. to Fairfield Ave.	A. W. Bryne	12 10	Tile	311.4 607.4	26	390	4	1,698.88		1,698.88			
ısonia Street	Crossing private lands north of, near Fairfield Ave.	A. W. Bryne	8	Tile	90.8				107.00		107.00			
·oadview Terrace	350 feet south of Dart Ave., northerly to Dart Ave.	Louis Rogers & Co.	12 10	Tile Tile	111.4 235.2	11	165	2	607.04		607.04			
ırlington Street	Cornwall St. easterly 570 feet	N. C. Casciano & Co.	12 10	Tile Tile	250.0 320.0			2	3,750.00			3,750.00		Cost estimated includes Hebron and Sharon Sts. below.
ınton Street	Windsor St. to Wooster St.	P. Bonadies & Co.	24 18	Tile Tile	57.0 613.3			4	2,534.07	1,267.03	1,267.04			Replaced old sewer.
lgewood Street	Vine St. westerly 450 feet	Bonadies & Monacchio	10	Tile	454.7	7	105	2	873.69		873.69			
ıfield Street	Gully Brook Int. southerly	Louis Rogers	10	Tile	170.4	5	75	2	430.00			430.00		
·anklin Avenue	Tredeau St. to City Line	O'Neil Brothers	24 20 18	Tile Tile Tile	215.0 90.8 433.8	12	248	7	9,827.25		9,485.78		341.47	$341.47 paid by the Town of Wethersfield. The cost given here includes $110.00 damages for right of way, also sewers in Montowese St., Victoria Road and private lands.

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1916 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Talcott Street	Market St. to Main St.	Paved	Sheet Asphalt	No	$2.75	$2.7184	Sep. 26, 1898	Sep. 26, 1903
Talcott Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	1.7221	Nov. 21, 1914	Nov. 21, 1919
Temple Street	Main St. to Market St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Temple Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	2.7883	Nov. 21, 1914	Nov. 21, 1919
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	E. side and tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1913
Trinity Street	Capitol Ave. to North end of Bridge	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27, 1898	June 27, 1903
Trumbull Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	No	1.55	By City	Dec. 30, 1915	Dec. 30, 1920
Trumbull Street	Church St. to Pratt St.	Resurfaced	Sheet Asphalt	No	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Pearl St. to Hicks St.	Paved	Granite Block	No	3.56	5.4946	Nov. 22, 1915	Nov. 22, 1916
Union Place	Asylum St. to Church St.	Paved	Granite Block	No	3.37	....	1894	....
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Village Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.55	1.3329	Dec. 30, 1915	Dec. 30, 1920
Wethersfield Avenue	Wyllys St. to Bond St.	Paved	Sheet Asphalt	D. T.	1.55	2.3724	Dec. 30, 1915	Dec. 30, 1920
Windsor Avenue	Main St. to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sep. 11, 1899	Sep. 11, 1904
Windsor Avenue	Albany Ave. to Mather St.	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	July 21, 1914	July 21, 1919
Windsor Avenue	Main St. to Canton St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1907	....
Windsor Avenue	Canton St. to Capen St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Windsor Street	Main St. to Park St.	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903
Windsor Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.69	2.5563	Nov. 21, 1914	Nov. 21, 1919

Note—Price given, except for resurfacing, is for completed pavement (asphalt and concrete, exclusive of excavation).

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	Part Paid by Others	REMARKS
						No	Length							
lgefield Street	Westbourne Parkway to Holcomb St.	E. T. Duncan	24 20 18 15 12 10	Tile Tile Tile Tile Tile Tile	295.4 416.8 1315.3 725.2 250.0 279.8	55	805	13	$10,681.54		$10,681.54			Cost given here includes Westbourne Parkway sewer.
ıron Street	Cornwall St. to Blue Hills Ave.	N. C. Casciano & Co.	12 10	Tile Tile	411.0 670.0			3						Cost included in Burlington St. above.
ıon Avenue	Interceptor northerly to 125 ft. South of Warrenton Ave.	J. Monacchio & Co.	10	Tile	365.9	8	48	2	878.58		878.58			
ıdeau Street	Franklin Ave. to George St.	Berardini Silvestri	18 15 12	Tile Tile Tile	336.1 382.3 384.4	37	555	4	2,180.00			2,180.00		
ımbull Street	Jewell St. to Pearl St.	A. W. Bryne	30 24 18	Concrete Tile Tile	128.0 285.7 10.6	10	233	6	3,136.63	1,625.19	1,511.44			Replaced old sewers.
toria Road	Between Franklin Ave. and George St.	O'Neil Brothers	15 10	Tile Tile	262.8 660.0	38	577	4						The cost included in Franklin Ave. above.
rrenton Avenue	Evergreen Ave. easterly	Tony Russo	8	Tile	139.3	1	6		200.00			200.00		
stbourne Parkway	Blue Hills Av. to Ridgefield St.	E. T. Duncan	30	Concrete	797.8			2						The cost included in Ridgefield St. above.
nchester Street	Gully Brook easterly to Vine Street	Louis Rogers	10	Tile	365.6	5	75	3	517.25			517.25		
tals.............	....	....	.....	....	32969.8	632	9618	176	111,251.06	39,087.48	60,182.37	11,639.74	341.47	

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916 (*Continued*).

Total length of sewers built since April 1, 1915, to March 31, 1916,	32,969.8 feet	6.24 miles
Length of sewers replaced by above,	1,770.2 feet	0.33 miles
Net increase in length of sewers in use,	31,199.6 feet	5.91 miles
Sewers in use March 31, 1915,		135.34 miles
Sewers in use March 31, 1916,		141.25 miles

SUMMARY OF MATERIALS USED IN 1915–1916.

24-inch tile,	3,497.9 feet	0.66 miles	10.6%
20-inch tile	2,854.1 feet	0.54 miles	8.7%
18-inch tile	4,333.6 feet	0.82 miles	13.1%
15-inch tile,	2,687.0 feet	0.51 miles	8.2%
12-inch tile,	4,281.3 feet	0.81 miles	13.0%
10-inch tile,	8,243.0 feet	1.56 miles	25.0%
8-inch tile,	2,581.6 feet	0.49 miles	7.8%
All sizes tile,	28,478.5 feet	5.39 miles	86.4%
Monolithic concrete	2,695.5 feet	0.51 miles	8.2%
Concrete invert and block arch,	1,258.4 feet	0.24 miles	3.8%
Vitrified segment block,	537.4 feet	0.10 miles	1.6%
Totals	32,969.8 feet	6.24 miles	100.0%

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916 *(Concluded)*.

SUMMARY BY METHOD OF PAYMENT.

New construction, cost divided between City and property owners,	2.46 miles	39.4%	$61,732.87	55.4%
Reconstruction, cost divided between City and property owners,	0.33 miles	5.3%	8,884.90	8.0%
Total.	2.79 miles	44.7%	70,617.77	63.4%
Entire cost paid by City,	0.16 miles	2.6%	3,207.89	3.1%
Entire cost assessed on property, including Franklin Avenue, assessed on Town of Wethersfield,	1.85 miles	29.6%	25,678.66	23.0%
Built for private parties under Drain Layers' rules,	1.44 miles	23.1%	11,746.74	10.5%
Total,	6.24 miles	100.0%	111,251.06	100.0%

During year ending March 31, 1915,	6.61 miles of sewers were built, costing	$192,035.45
During year ending March 31, 1914,	3.31 miles of sewers were built, costing	57,395.47
During year ending March 31, 1913,	3.95 miles of sewers were built, costing	65,234.39
During year ending March 31, 1912,	3.19 miles of sewers were built, costing	113,815.90
During year ending March 31, 1911,	3.38 miles of sewers were built, costing	141,390.01
During year ending March 31, 1910,	1.60 miles of sewers were built, costing	11,756.04

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1916.

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	North side and tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Albany Avenue	East St. to 50 ft. East of Magnolia St.	Paved	Sheet Asphalt	D. T.	1.69	2.8845	Nov. 21, 1914	Nov. 21, 1919
Allyn Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	Jun. 12, 1899	June 12, 1904
Amer. & Cent. Rows	East of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Amer. & Cent. Rows	East of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum St. to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street	Spruce St. to Farm'ton Av.	Tracks relaid	Granite Block	D. T.	......	....	1911	....
Asylum Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce St. to Farm'ton Av	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford St. to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Asylum Street	Main St. to Spruce St.	Repaved	Sheet Asphalt	S. & D.	2.28	By City	Oct. 12, 1908	Oct. 12, 1918
Asylum Street	Spruce St. to Garden St.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Spruce St. to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Hopkins St. to Farm'ton Av	S. side resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Asylum Street	Garden St. west to Header	N. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Jun. 23, 1914	June 23, 1919
Atheneum Street	Prospect St. to Main St.	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Atheneum St., South	Main St. to Prospect St.	Paved	Sheet Asphalt	No	1.60	By City	Nov. 2, 1915	Nov. 2, 1920
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1897	....
Broad Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Capitol Avenue	Lafayette St. to Park River	Paved	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 26, 1905
Capitol Avenue	Lafayette St. to Broad St.	N. side resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Lafayette St. to Broad St.	S side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Broad St. to Park River	Both sides resurf'd	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.	......	....	1895	....

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1916 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	$2.65	By City	Dec. 6, 1911	No guarantee
Central Row	Main St. to Post Office	Paved	Block Asphalt	D. T.	3.04	$5.5600	Oct. 12, 1896	Oct. 12, 1901
Central Row	Main St. to Post Office	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Church Street	Main St. to Trumbull St.	Paved	Sheet Asphalt	No	2.59	2.1163	Nov. 8, 1897	Nov. 8, 1902
Church Street	Main St. to Trumbull St.	Resurfaced	Sheet Asphalt	No	1.67	By City	July 28, 1909	July 28, 1914
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Church Street	Union Pl. to Spruce St.	Resurfaced	Sheet Asphalt	No	1.39	By City	Sep. 29, 1913	Sep. 29, 1918
Church Street	Spruce St. westerly	Paved	Granite Block	No	3.63	4.1578	Oct. 15, 1913	Oct. 15, 1914
Farmington Avenue	Asylum Av. to Woodland St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue	Asylum Av. to Sigourney St.	Full width resurf.	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Both sides resurf'd	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1909	....
Farmington Avenue	Woodland to Tremont St.	Paved	Sheet Asphalt	D. T.	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue	Tremont St. to Prospect Av.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ford Street	Pearl St. to Asylum St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Ford Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1918
Front Street	State St. to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Front Street	State St. to Morgan St.	Paved	Sheet Asphalt	No	2.15	2.8721	Dec. 5, 1913	Dec. 5, 1918
Gold Street	Main St. to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sep. 11, 1898	Sep. 11, 1903
Grove Street	Main St. to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect St. to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1898	....
Hamilton Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Haynes Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church St. to Main St.	Resurfaced	Sheet Asphalt	No	1.27	By City	May 19, 1911	May 19, 1916
High Street	Asylum St. to Church St.	Resurfaced	Sheet Asphalt	No	0.89	By City	June 23, 1914	June 23, 1919
Hopkins Street	Broad St. to Asylum St.	Paved	Sheet Asphalt	No	2.58	2.3865	June 12, 1899	June 12, 1904
Kinsley Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1916 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Laurel Street	Bridge over Park River	Paved	Brick	S. T.	......	....	1894	....
Laurel Street	Bridge over Park River	Repaved	Brick	S. T.	$2.40	By City	July 11, 1900	....
Lewis Street	Pearl St. to Gold St.	Paved	Sheet Asphalt	No	2.51	$1.808	Sep. 24, 1900	Sep. 24, 1905
Main Street	Arch St. to Morgan St.	Paved	Sheet Asphalt	D. T.	2.49	5.4887	Dec. 14, 1896	Dec. 14, 1901
Main Street	Morgan St. to Windsor Ave.	Paved	Sheet Asphalt	D. T.	2.70	4.6395	Oct. 11, 1897	Oct. 11, 1902
Main Street	Wyllys St. to Arch St.	Paved	Sheet Asphalt	D. T.	2.66	4.5750	Oct. 25, 1897	Oct. 25, 1902
Main Street	Wyllys to Charter Oak Ave.	E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Main Street	State St. north	Tracks repaved	Wood Block	D. T.	......	....	1903	....
Main Street	Eng. House 1 to Wells St.	W. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Char. Oak Av. to Atheneum	E. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Jefferson St. to Park St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Windsor St. to Windsor Av.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Jefferson St. to Park St.	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1912	....
Main Street	Wyllys to N. end South Gr'n	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1908	....
Main Street	Park St. to Eng. House No. 1	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Triangle N. end South Gr'n	Resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Atheneum St. to Cent. Row	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	State St. to Windsor St.	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Wells St. to Ann St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Ann St. to Lumber St North 200′ on Windsor Ave.	Whole St. resurf'd E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Market Street	State St. to Temple St.	Paved	Sheet Asphalt	S. T.	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1903
Market Street	Temple St. to Morgan St.	Paved	Sheet Asphalt	S. T.	2.56	2.3270	Oct. 9, 1899	Oct. 9, 1904
Market Street	Morgan St. to Pleasant St.	Paved	Sheet Asphalt	No	1.69	2.0173	Nov. 21, 1914	Nov. 21, 1919
Market Street	State St. to Morgan St.	W. side and tracks resurfaced	Sheet Asphalt	S. T.	1.65	By City	Aug. 4, 1904	Aug. 4, 1914
Market Street	Temple St. to Morgan St.	E. side resurfaced	Sheet Asphalt	S. T.	0.89	By City	June 23, 1914	June 23, 1919
Market Street	State St. to Morgan St.	Tracks resurfaced	Sheet Asphalt	S. T.	......	....	1914	....
Marsh Court	Market St. to Village St.	Paved	Sheet Asphalt	No	2.15	1.1455	Dec. 5, 1913	Dec. 5, 1918

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1916 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Morgan Street	Market St. to Main St.	Paved	Granite Block	S. T.	$3.09	$2.1525	Dec. 27, 1898	Aug. 27, 1899
Morgan Street	Intersection with Front St.	Paved	Granite Block	D. T.	......	By City	Dec. 5, 1913	No guarantee
Morgan Street	Front St. to Market St.	Paved	Sheet Asphalt	D. T.	2.15	3.1641	Dec. 5, 1913	Dec. 5, 1918
Mulberry Street	Main St. to Wells St.	Paved	Sheet Asphalt	No	2.55	2.6970	Nov. 14, 1898	Nov. 14, 1903
Park Street	Under Railroad Bridge	Paved	Granite Block	S. T.	3.35	By City	Nov. 27, 1899	July 27, 1900
Park Street	Under Railroad Bridge	Relaid	Granite Block	S. T.	1.35	By City	Oct. 4, 1910	No guarantee
Park Street	Under Railroad Bridge	Repaved	Granite Block	D. T.	......	By Railroad	1912	....
Park Street	Bridge over Park River	Paved	Sheet Asphalt	D. T.	......	....	1898	....
Park Street	Bridge over Park River	Relaid	Sheet Asphalt	D. T.	......	By Railroad	1912	....
Pearl Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	2.89	3.8380	July 22, 1895	July 22, 1900
Pearl Street	Main St. to Ford St.	Repaved	Sheet Asphalt	S. T.	2.70	By City	Sep. 10, 1903	Sep. 10, 1913
Pearl Street	Main St. to Ford St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Pleasant Street	Winthrop St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.3373	July 11, 1898	July 11, 1903
Pleasant Street	Windsor St. to Railroad	Paved	Sheet Asphalt	No	2.15	2.7830	Dec. 5, 1913	Dec. 5, 1918
Pratt Street	Main St. to Trumbull St.	Paved	Brick	No	......	By City	1892	....
Pratt Street	Main St. to Trumbull St.	Surfaced	Sheet Asphalt	No	1.68	1.4285	Aug. 14, 1899	Aug. 14, 1904
Prospect Street	Atheneum St. to Cent. Row	Paved	Sheet Asphalt	No	2.55	2.5256	July 25, 1898	July 25, 1903
Prospect Street	Grove St. to Central Row	Resurfaced	Sheet Asphalt	No	1.27	By City	Oct. 23, 1912	Oct. 23, 1917
Sheldon Street	Main St. to Union St.	Paved	Sheet Asphalt	No	2.20	2.5747	Oct. 4, 1911	Oct. 4, 1916
Sheldon Street	Union St. to Commerce St.	Paved	Sheet Asphalt	No	2.16	3.0100	Oct. 23, 1912	Oct. 23, 1917
Spruce Street	Asylum St. to Church St.	Paved	Sheet Asphalt	No	2.51	3.0163	Oct. 1, 1900	Oct. 1, 1905
Spruce Street	Church St. northerly	Paved	Granite Block	No	3.63	4.3221	Oct. 15, 1913	Oct. 15, 1914
State Street	Main St. to Commerce St.	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
State Street	City Hall to Main St.	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. westerly	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. to Conn.Boul'v'd	Repaved	Sheet Asphalt	D. T.	2.16	By City	Dec. 9, 1912	Dec. 9, 1917
State Street	Conn.Boulv'd to Commerce	Covered	Macadam	No	......	By City	1908	....
State Street	Front St. to City Hall	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Talcott Street	Market St. to Main St.	Paved	Granite Block	No	3.09	2.7184	Sep. 26, 1898	May 26, 1899

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO JANUARY 1, 1916 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Talcott Street	Market St. to Main St.	Paved	Sheet Asphalt	No	$2.75	$2.7184	Sep. 26, 1898	Sep. 26, 1903
Talcott Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	1.7221	Nov. 21, 1914	Nov. 21, 1919
Temple Street	Main St. to Market St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Temple Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	2.7883	Nov. 21, 1914	Nov. 21, 1919
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	E. side and tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1913
Trinity Street	Capitol Ave. to North end of Bridge	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27, 1898	June 27, 1903
Trumbull Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	No	1.55	By City	Dec. 30, 1915	Dec. 30, 1920
Trumbull Street	Church St. to Pratt St.	Resurfaced	Sheet Asphalt	No	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Pearl St. to Hicks St.	Paved	Granite Block	No	3.56	5.4946	Nov. 22, 1915	Nov. 22, 1916
Union Place	Asylum St. to Church St.	Paved	Granite Block	No	3.37	....	1894	....
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Village Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.55	1.3329	Dec. 30, 1915	Dec. 30, 1920
Wethersfield Avenue	Wyllys St. to Bond St.	Paved	Sheet Asphalt	D. T.	1.55	2.3724	Dec. 30, 1915	Dec. 30, 1920
Windsor Avenue	Main St. to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sep. 11, 1899	Sep. 11, 1904
Windsor Avenue	Albany Ave. to Mather St.	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	July 21, 1914	July 21, 1919
Windsor Avenue	Main St. to Canton St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1907	....
Windsor Avenue	Canton St. to Capen St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Windsor Street	Main St. to Park St.	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903
Windsor Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.69	2.5563	Nov. 21, 1914	Nov. 21, 1919

Note—Price given, except for resurfacing, is for completed pavement (asphalt and concrete, exclusive of excavation).

IMPROVED PAVEMENTS IN HARTFORD JANUARY 1, 1916

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Albany Avenue	Windsor Ave. to East St.	D. T.	4520.00					0.21
Albany Avenue	East St. to Magnolia St.	D. T.	14050.70					0.44
Allyn Street	Trumbull St. to Union Place	No	6041.00					0.29
Amer. & Cent. Rows	East of Post Office	D. T.		1885.00				0.03
Ann Street	Asylum St. to Allyn St.	No	1170.26					0.06
Asylum Street	Spruce St. to Farmington Av.	D. T.		4658.72				0.16
Asylum Street	Spruce St. to Farmington Av.	D. T.	1701.58					
Asylum Street	Main St. to Spruce St.	S. T. & D. T.	10351.20					0.48
Atheneum Street	Prospect St. to Main St.	No	558.33					0.07
Atheneum St. South	Main St. to Prospect St.	No	1387.00					0.07
Broad Street	Bridge over Park River	No	451.55					0.02
Capitol Avenue	Lafayette St. to Park River	D. T.	15075.34					0.60
Capitol Avenue	Park River to Laurel St.	D. T.	4067.50					0.18
Capitol Avenue	Bridge over Park River	S. T.					442.60	0.03
Central Row	Main St. to Post Office	D. T.	2000.00					0.05
Church Street	Main St. to Trumbull St.	No	1399.24					0.11
Church Street	Union Pl. to Spruce St.	No.	957.00					0.06
Church Street	Spruce St. westerly	No		238.17				0.01
Farmington Avenue	Asylum to Prospect Aves.	D. T.	42630.44					1.60
Ford Street	Pearl St. to Asylum St.	D. T.	2658.90					0.10
Front Street	State St. to Sheldon St.	No	5191.46					0.30
Front Street	State St. to Morgan St.	No	4583.29					0.26
Gold Street	Main St. to Lewis St.	No	1458.00					0.08
Grove Street	Main St. to Front St.	No	2342.07					0.19
Hamilton Street	Bridge over Park River	No	369.00					0.02
Haynes Street	Pearl St. to Asylum St.	No			718.42			0.05
High Street	Asylum St. to Main St.	No	6341.00					0.42
Hopkins Street	Broad St. to Asylum St.	No	3135.80					0.21
Kinsley Street	Market St. to Main St.	No	1037.20					0.09

IMPROVED PAVEMENTS IN HARTFORD, JANUARY 1, 1916 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Laurel Street	Bridge over Park River	S. T.	....	....	....	411.00	....	0.02
Lewis Street	Pearl St. to Gold St.	No	1085.00	....	....	....	....	0.10
Main Street	Wyllys St. to Windsor Ave.	D. T.	56414.27	....	....	....	....	1.47
Main Street	State St. north	D. T.	....	....	....	....	500.00	0.06
Market Street	State St. to Morgan St.	S. T.	5255.28	....	....	....	....	0.25
Market Street	Morgan St. to Pleasant St.	No	2846.4	....	....	....	....	0.17
Marsh Court	Market St. to Village St.	No	552.95	....	....	....	....	0.08
Morgan Street	Market St. to Main St.	S. T.	....	1520.87	....	....	....	0.10
Morgan Street	Market St. to Front St.	S. T. & D. T.	2213.94	....	....	....	....	0.09
Morgan Street	Intersection of Front Street	D. T.	....	342.71	....	....	....	....
Mulberry Street	Main St. to Wells St.	No	1298.85	....	....	....	....	0.08
Park Street	Under Railroad Bridge	D. T.	....	560.00	....	....	....	0.03
Park Street	Bridge over Park River	D. T.	555.50	....	....	....	....	0.02
Pearl Street	Main St. to Ford St.	D. T.	8188.50	....	....	....	....	0.32
Pleasant Street	Winthrop St. to Main St.	No	1010.41	....	....	....	....	0.07
Pleasant Street	Windsor St. to Railroad	No	2239.71	....	....	....	....	0.14
Pratt Street	Main St. to Trumbull St.	No	1438.00	....	....	....	....	0.11
Prospect Street	Atheneum St. to Central Row	No	1802.62	....	....	....	....	0.13
Sheldon Street	Main St. to Commerce St.	No	5640.26	....	....	....	....	0.35
Spruce Street	Asylum St. to Church St.	No	2286.00	....	....	....	....	0.12
Spruce Street	Church St. northerly	No	....	1527.82	....	....	....	0.09
State Street	City Hall to Main St.	D. T.	1395.00	....	....	....	....	0.04
State Street	Front St. to Conn. Boulevard	D. T.	2609.94	....	....	....	....	0.09
State Street	Front St. westerly	D. T.	343.10	....	....	....	....	....
State Street	Front St. to City Hall	D. T.	....	4501.81	....	....	....	0.15
Talcott Street	Market St. to Main St.	No	....	950.42	....	....	....	0.09
Talcott Street	Market St. to Main St.	No	340.20	....	....	....	....	....
Talcott Street	Market St. to Front St.	No	1279.1	....	....	....	....	0.09
Temple Street	Market St. to Main St.	No	1051.87	....	....	....	....	0.09

IMPROVED PAVEMENTS IN HARTFORD, JANUARY 1, 1916 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Temple Street	Market St. to Front St.	No	2032.8					0.10
Trinity Street	Capitol Ave. to Ford St.	S. T. & D. T.	6947.80					0.27
Trumbull Street	Asylum St. to Main St.	No	5341.77					0.25
Trumbull Street	Pearl St. to Asylum St.	No	1377.13					0.04
Trumbull Street	Pearl St. to Hicks St.	No		1096.40				0.05
Union Place	Asylum St. to Church St.	No		3267.00				0.12
Village Street	Pleasant St. to Avon St.	No	2024.30					0.18
Village Street	Windsor St. to Pleasant St.	No	1927.30					0.11
Wethersfield Avenue	Wyllys St. to Bond St.	D. T.	25044.00					0.76
Windsor Avenue	Main St. to Capen St.	D. T.	19786.20					0.75
Windsor Street	Main St. to the Park.	No		2018.10				0.06
Windsor Street	The Park to Pleasant St.	No	2318.12					0.11
Windsor Street	Pleasant St. to Avon St.	No	3680.20					0.18
Totals			305837.18	22567.02	718.42	411.0	942.60	13.52

Total Yardage all Pavements—330476.22 square yards.

Total Length—Asphalt 12.47 miles; Granite Block 0.89 miles; Wood Block 0.09 miles; Asphalt Block 0.05 miles; Brick 0.02 miles.

Total Length all Pavements—13.52 miles.

TABLE SHOWING THE NUMBER OF SQUARE YARDS LAID YEARLY AND THE MILEAGE ACTUALLY COVERED OF THE DIFFERENT KINDS OF IMPROVED PAVEMENT LAID IN HARTFORD SINCE 1892.

THIS TABLE INCLUDES ONLY NEW PAVEMENT LAID—NO REPAIR WORK.

Year Laid	*Brick*		*Block Asphalt*		*Granite Block*		*Wood Block*		*Sheet Asphalt*		*Total Yardage Laid Each Year*	*Total Miles*
	Yardage	*Miles*	*Yardage*	*Miles*	*Yardage*	*Miles*	*Yardage*	*Miles*	*Yardage*	*Miles*		
1892...	1427.55	0.11									1427.55	0.11
1894...	411.00	0.02			3267.00	0.12					3678.00	0.14
1895...	442.60	0.03	7755.50	0.32							8198.10	0.35
1896...			12063:32	0.38					21466.71	0.63	33530.03	1.01
1897...			6694.04	0.36					45074.48	1.51	51768 52	1.87
1898...			8925.19	0.32	9148.10	0.40			21974.39	1.11	40047.68	1.83
1899...					560.00	0.03			63784.40	3.10	64344.40	3.13
1900...									23923.34	1.06	23923 34	1.06
1903...							600.00	0.06	8188.50	0.32	8788.50	0.38
1908...					1756.94	0.07			13010.10	0.58	14767 04	0.65
1909...					4629.87	0.12			7805.60	0.28	12435.47	0.40
1910...									14487.97	0.50	14487.97	0.50
1911...							442.60	0.03	10963.41	0.50	11406.01	0.53
1912...									10583.97	0.58	10583.97	0.58
1913...					2108.70	0.10			9589.89	0.57	11698.59	0.67
1914...									23889.20	0.98	23889.20	0.98
1915...					1096.40	0.05			29873.30	1.05	30969.70	1.10
Totals..	2281.15	0.16	35438.05	1.38	22567.01	0.89	1042.60	0.09	304615.26	12.77	365944.07	15.29

Note—The original paving on several streets has been removed and replaced by other pavements, and since this table contains both the original and the present pavement, the totals given here exceed the total yardage and miles in use at the present time as shown in another table.

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID.

Street	*Location*	*Asphalt Used*	*Year Laid*
Albany Avenue	South side, Lumber St. to East St.	Trinidad	1900
Albany Avenue	North side and tracks, Lumber St. to East St.	California (Atlas)	1909
Albany Avenue	Both sides and tracks, East St. to 50 feet East of Magnolia St.	Aztec (Mexican)	1914
Allyn Street	Trumbull St. to Union Pl.	Trinidad	1899
Ann Street	Asylum St. to Allyn St.	Trinidad	1898
Asylum Street	Main St. to Spruce St.	Bermudez	1908
Asylum Street	Strips on both sides, Spruce St. to Garden and Hopkins Sts.	Bermudez and California (Atlas)	1912
Asylum Street	Strip on north side, Garden St. westerly to header at macadam	Aztec (Mexican)	1914
Asylum Street	South side, Hopkins St. to Farmington Ave.	Bermudez and 5% California	1913
Atheneum Street	Prospect St. to Main St.	Trinidad	1896
Atheneum St. South	Main St. to Prospect St.	Aztec	1915
Broad Street	Bridge over Park River	Bermudez and 5% California	1914
Capitol Avenue	Both sides, Park River Bridge to Laurel St.	Bermudez	1909
Capitol Avenue	North side, Hungerford St. to Lafayette St.	Bermudez	1910
Capitol Avenue	South side and south track, Broad St. to Lafayette St.	Bermudez	1911
Capitol Avenue	North track and dummy, 150 east of Oak St. to Lafayette St.	Bermudez	1911
Capitol Avenue	Both sides, Broad St. to Park River Bridge	Bermudez	1911
Capitol Avenue	Tracks, Park River Bridge to Laurel St.	California (Atlas)	1909
Capitol Avenue	North side, Hungerford St. to Broad St.	California (Atlas)	1910
Capitol Avenue	Intersection at Lafayette St.	California (Atlas)	1911
Central Row	Main St. to granite block	Bermudez (small area California)	1909
Church Street	Main St. to Trumbull St.	California (Atlas)	1909
Church Street	Union Pl. to Spruce St.	Bermudez and 5% California	1913
Church Street	Intersection at Spruce St.	Trinidad and Bermudez, 50 and 50%	1913
Farmington Avenue	South track and dummy, Sigourney St. to Woodland St.	Bermudez	1909
Farmington Avenue	Woodland St. to 100 feet east of Tremont St.	Bermudez	1910
Farmington Avenue	South side, south track and dummy, from 110 feet east of Tremont St. to 120 feet west of Beacon St.	Bermudez and Trinidad	1911
Farmington Avenue	North side and north track, from 110 feet east of Tremont St. to140 feet west of Beacon St.	California and Bermudez	1911
Farmington Avenue	From 120 feet west of North Beacon St. and from 140 feet west of North Beacon St. to City Line, both sides	California (Atlas)	1911
Farmington Avenue	North track, Sigourney St. to Woodland St.	California (Atlas)	1909

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Farmington Avenue	North and south sides, from Asylum to Woodland Sts.	Bermudez and 5% California (Atlas)	1913
Farmington Avenue	North and south tracks and dummy, from Sigourney St. to Asylum St.	Bermudez and 5% California (Atlas)	1913
Ford Street	Asylum St. to Bridge over Park River	Bermudez	1908
Front Street	Potter St. to Sheldon St.	Bermudez and California	1912
Front Street	Potter St. to State St.	California (Acme)	1912
Front Street	Morgan St. to State St.	Bermudez and 5% California (Atlas)	1913
Front Street	Intersection at Talcott St.	Trinidad and Bermudez, 50 and 50%	1913
Gold Street	Main St. to Lewis St.	Trinidad	1898
Grove Street	Front St. to Prospect St.	California (Acme)	1912
Grove Street	Prospect St. to Main St.	Trinidad	1898
Hamilton Street	Bridge over Park River	Bermudez and 5% California	1914
High Street	Church St. to Main St.	Bermudez	1911
High Street	Asylum St. to south side of Allyn St., north side of Allyn St. to south side of Church Street	Bermudez and 5% California	1914
Hopkins Street	Broad St. to Asylum St.	Trinidad	1899
Kinsley Street	Market St. to Main St.	Trinidad	1898
Lewis Street	Pearl St. to Gold St.	Trinidad	1900
Main Street	East side, Wyllys St. to 100 feet south of Charter Oak Ave.	Aztec (Mexican)	1914
Main Street	East side, from 140 feet north of, to 100 feet south of Charter Oak Ave.	Bermudez	1910
Main Street	East side from Sheldon St. to 140 feet north of Charter Oak Ave.	California (Obispo)	1910
Main Street	Sheldon St. Intersection	Bermudez	1910
Main Street	East side, from 80 feet north of Arch St. to Sheldon St.	California (Obispo)	1910
Main Street	East side, Atheneum St. to 80 feet north of Arch St.	Bermudez	1910
Main Street	East side, Atheneum St. to 70 feet north of Grove St.	Bermudez and California (Atlas)	1912
Main Street	East side, Central Row to 70 feet north of Grove St.	Bermudez	1912
Main Street	East side, Central Row to State St.	Trinidad	1896
Main Street	East side, from State St. to 100 feet north of Temple St.	Bermudez	1912
Main Street	East side, from 100 feet north of Temple St. to 50 feet north of Talcott St.	Bermudez and California (Atlas)	1912
Main Street	East side, Windsor St. to 50 feet north of Talcott St.	Bermudez	1912
Main Street	North side, Windsor St. to 120 feet east of Pleasant St.	California (Atlas)	1911
Main Street	North side, Windsor Ave. to 120 feet east of Pleasant St.	Bermudez	1911
Main Street	West side, from Jefferson St. 80 feet north, and tracks 190 feet north	Bermudez	1912
Main Street	West side, Park St. to 80 feet north of Jefferson St.	Bermudez and Trinidad	1911

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Main Street	West side, Park St. to Engine House No. 1	California (Atlas)	1912
Main Street	West side, Wells St. to Engine House No. 1	Bermudez	1910
Main Street	West side, Wells St. 180 feet south of Mulberry St.	Bermudez and California (Atlas)	1912
Main Street	West side, from 270 feet south of Grove St. to 180 feet south of Mulberry	California (Acme)	1912
Main Street	West side, Grove St. 270 feet south	Bermudez	1912
Main Street	West side, Grove St. to Asylum St.	Bermudez and California (Acme)	1912
Main Street	West side, Asylum St. to 110 feet north of Church St.	Bermudez and California	1912
Main Street	South-west side, from 540 feet east of Ann St. to 110 feet north of Church	California (Atlas)	1912
Main Street	South side, from Ann St. 540 feet easterly	Bermudez and California (Atlas)	1912
Main Street	Triangle between tracks at Tunnel, including tracks and south side from east side of Ann St. west to Lumber St.	Aztec (Mexican)	1914
Main Street	Triangle between tracks at South Green	Bermudez and California (Atlas)	1912
Main Street	Tracks, Wyllys St. to north end of South Green	Bermudez	1908
Main Street	Tracks, Central Row to State St. and Pearl St. Intersection	Bermudez	1909
Main Street	Track work at Main St., State St. and Asylum St. Intersection	California (Atlas)	1909
Main Street	Tracks at Park St. to 190 feet north of Jefferson St.	California (Atlas)	1912
Main Street	West side, Wyllys St. to Park St. (East Section)	Trinidad	1897
Market Street	West side, Morgan St. to State St.	California (Atlas)	1909
Market Street	Track, State St. to Morgan St.	Bermudez and 5% California	1914
Market Street	Morgan St. to Pleasant St.	Aztec (Mexican)	1914
Market Street	East side, State St. to Temple St.	Trinidad	1898
Market Street	East side, Temple St. to Morgan St.	Bermudez and 5% California	1914
Marsh Court	Village St. to Market St.	Bermudez and 5% California	1913
Morgan Street	Both sides and tracks, Market St. to Front St.	Bermudez and 5% California	1913
Mulberry Street	Main St. to Wells St.	Trinidad	1898
Park Street	Bridge over Park River	Bermudez	1912
Pearl Street	Tracks from Main St. to 150 feet west	Bermudez	1909
Pearl Street	Tracks, from 150 feet west of Main St. to Ford St.	Bermudez	1910
Pearl Street	Both sides, Main St. to Ford St.	Trinidad	1903
Pleasant Street	Winthrop St. to Main St.	Trinidad	1903
Pleasant Street	Windsor St. to Railroad (Windsor St. to Market St.)	Trinidad	1913
	(Market St. to Railroad)	Trinidad and Bermudez, 50 and 50%	1913
Pratt Street	Main St. to Trumbull St.	Trinidad	1899

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Prospect Street	Central Row to Grove St.	California (Acme)	1912
Prospect Street	Grove St. to Atheneum St.	Trinidad	1898
Sheldon Street	Union St. to Taylor St.	California (Acme)	1912
Sheldon Street	Main St. to 77 feet west of Union St.	California (Atlas)	1911
Sheldon Street	Main St. from 77 west of Union St. to Union St.	Texaco	1911
Spruce Street	Asylum St. to Church St.	Trinidad	1900
State Street	Gutters, both sides, from Market St. to Front St.	Bermudez	1901
State Street	South side and track, from end of granite block west of Front St. to Connecticut Boulevard	Bermudez	1912
State Street	North side, track and dummy, from 220 feet east of granite block to Connecticut Boulevard	Bermudez and California (Acme)	1912
State Street	North side, track and dummy, from granite block 220 feet easterly	California (Acme)	1912
State Street	North side, granite block to Main St.	California (Atlas)	1909
Talcott Street	Gutters on both sides, Market St. to Main St.	Trinidad	1898
Talcott Street	Front St. to Market St.	Aztec (Mexican)	1914
Temple Street	Market St. to Main St.	Trinidad	1898
Temple Street	Front St. to Market St.	Bermudez and 5% California	1914
Trinity Street	East side and tracks, Capitol Ave. to Bridge	Bermudez	1908
Trinity Street	West side, Capitol Ave. to Ford St.	Aztec (Mexican)	1914
Trumbull Street	Asylum St. to Pearl St.	Texaco	1915
Trumbull Street	Asylum St. to Pratt St. and Church St. to Main St.	Trinidad	1898
Trumbull Street	Church St. to Pratt St.	Bermudez and 5% California	1914
Village Street	Windsor St. north	Trinidad	1898
Village Street	City Park to Pleasant St.	Trinidad	1899
Village Street	Pleasant St. to North St.	Aztec	1915
Village Street	North St. to Avon St.	Texaco	1915
Wethersfield Ave.	Wyllys St. to Bond St.	Aztec	1915
Windsor Avenue	Tracks, Albany Ave. to Canton St.	Bermudez	1907
Windsor Avenue	Tracks, Canton St. to Capen St.	California (Atlas)	1910
Windsor Avenue	East side, Main St. to Capen St., also west side, Mather St. to Capen St.	Trinidad	1899
Windsor Avenue	West side, Main St. to Mather St.	Aztec (Mexican)	1914
Windsor Street	City Park to Pleasant St.	Trinidad	1898
Windsor Street	Pleasant St. to Avon St.	Aztec (Mexican)	1914

TABLE SHOWING COST PER YARD FOR REPAIRS TO SHEET ASPHALT PAVEMENT ON TYPICAL STREETS OR SECTIONS OF STREETS FOR EACH YEAR AFTER THE EXPIRATION OF GUARANTEE TO JANUARY 1, 1916.

Street	*Section*	*Yards City Only*	*Com-pleted*	*Years Guaranteed*	*Sixth Year*	*Seventh Year*	*Eighth Year*	*Ninth Year*	*Tenth Year*	*Eleventh Year*	*Twelfth Year*	*Thirteenth Year*	*Fourteenth Year*	*Fifteenth Year*	*Sixteenth Year*	*Seventeenth Year*
					$	$	$	$	$	$	$	$	$	$	$	$
Allyn Street.....	Trumbull St. to Union Place.......	6041	1899	5	.003	.02	.02	.03	.07	.02	.06	.08	.04	.04	.043	....
Ann Street......	Asylum St. to Allyn St...........	1170	1898	5	....	....	....	....	.006	....	.005	....	.01	.01	.01	....
Capitol Avenue..	Park River to Laurel St..........	2059	1909	5	....	....	....	....	....	....	....	....	....	....	....	....
Church Street....	Main St. to Trumbull St..........	1399	1909	5	.008	....	....	....	....	....	....	....	....	....	....	....
Gold Street......	Main St. to Lewis St.............	1458	1898	5	....	....	....	....	....	....	....	.02	.02	....	.01	.006
Grove Street.....	Main St. to Prospect St..........	913	1898	5	....	....	....	....	.04	.06	.06	.03	.12	.14	.07	.049
Hopkins Street...	Broad St. to Asylum St...........	3136	1899	5	....	.07	.09	.24	.12	.22	.17	.13	.07	.11	.067	....
Kinsley Street...	Main St. to Market St............	1037	1898	5	....	....	....	....	....	.09	....	.01	....	....	.01	.005
Lewis Street.....	Pearl St. to Gold St.............	1085	1900	5	....	....	....	....	....	.01	.02	....	.01	.009	....	....
Mulberry Street..	Main St. to Wells St.............	1299	1898	5	....	.02	....	.02	.04	.01	....	.02	.03	.05	.07	.004
Pearl Street.....	Main St. to Ford St..............	4581	1903	10	....	....	....	....	....	.03	.011	....	....	....	....	....
Pleasant Street...	Main St. to Winthrop St..........	1010	1898	5	.01	....	....	....	....	....	.05	.01	....	....	.01	.016
Pratt Street.....	Main St. to Trumbull St..........	1438	1899	5	.01	.003	.01	.06	.05	.04	.03	.05	.13	.05	.046	....
Spruce Street....	Asylum St. to Church St..........	2286	1900	5	....	....	....	.002	.002	.01	.02	.05	.05	.051	....	....
Temple Street....	Main St. to Market St............	1052	1898	5	.003	.006	....	....	....	....	.01	....	....	.03	.001	.003
Trinity Street....	East side, Pearl St. to Capitol Ave..	2000	1908	5	....	....	....	....	....	....	....	....	....	....	....	....
Village Street....	City Park to Pleasant St.........	1927	1899	5	....	....	....	....	....	....	.005	.03	.02	.01	.016	....

in Box
TE
25

TENTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1917

TENTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

OF THE

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1917

THE BOND PRESS, INC.,
HARTFORD, CONN.

HARVARD [illegible]
The Library [illegible]
of Landscape Architecture and City Planning

ORGANIZATION

ROSCOE N. CLARK, City Engineer.
ROBERT J. ROSS, Assistant City Engineer.
FRANK G. FLOOD, Chemist.
WILLARD S. BREWER, Division Engineer.
HERBERT G. CLARK, Division Engineer.
H. IRVING SKILTON, Division Engineer.
F. PERRY CLOSE, Assistant Engineer.
JOHN P. MURPHY, Assistant Engineer.
JOHN F. DORAN, Assistant Engineer.
ALDEN WELLS, Assistant Engineer.

EDWARD L. DONAGHUE, Inspector.
SAMUEL G. GEER, Inspector.
PAUL P. KIMBALL, Inspector.
JOHN W. KNOX, Inspector.
JUDSON B. ROOT, Inspector.
FLORENCE L. CHAPIN, Clerk.

GEORGE ANGELO.
CLEMENT M. BRODERICK.
CHARLES W. COOKE.
ROBERT E. CROSS.
WILLIAM H. DAVIS.
AARON FIEN.
GEORGE S. FRANCIS.
E. SELDEN GEER, JR.
PAUL V. HASSELBROCK
PETER K. RASK.
THOMAS ROWLAND.

REPORT.

Hartford, Conn., August 24, 1917.

To his Honor the Mayor, and to the Honorable Court of Common Council of the City of Hartford, Connecticut.

Gentlemen:

I have the honor to submit the following report of the work of the Department of Engineering for the year ending March 31, 1917.

SEWER DIVISION.

The tables appended to this report give a list of all sewers laid during the past year, together with data concerning their construction and cost.

It will be noted that the largest single project is the sewer system west of Blue Hills Ave. from Uphill Street to the City Line, wherein 14,000 lineal feet or 2.65 miles of sewers have been built at a cost of $49,298.28. The excavation for these sewers has been done almost entirely by machinery, a small steam shovel of the revolving type being used on the larger sizes—30 to 60 inches in diameter, and a Parsons' trench excavator on the tile sewers and on some of the 30 and 36-inch sewers. This system of sewers should be completed in 1917 and will then provide modern sewerage facilities for the district between Blue Hills Avenue and Palm Street from Manchester Street to the

City Line with a trunk sewer from Manchester Street to the intersection of Uphill and Granby Streets ready for the construction of local branch sewers whenever demanded.

The next largest single item has been the expenditure of nearly $30,000 on the enclosing of Gully Brook, the portion completed being in Brook Street from Liberty Street to Albany Avenue. During the present season this conduit will be carried northerly across private lands to the culvert under Garden Street, a few hundred feet north of Pliny Street. It is also expected this year to continue this conduit along the present course of Gully Brook as far as the City Line of 1859, about 200 feet north of Vineland Terrace.

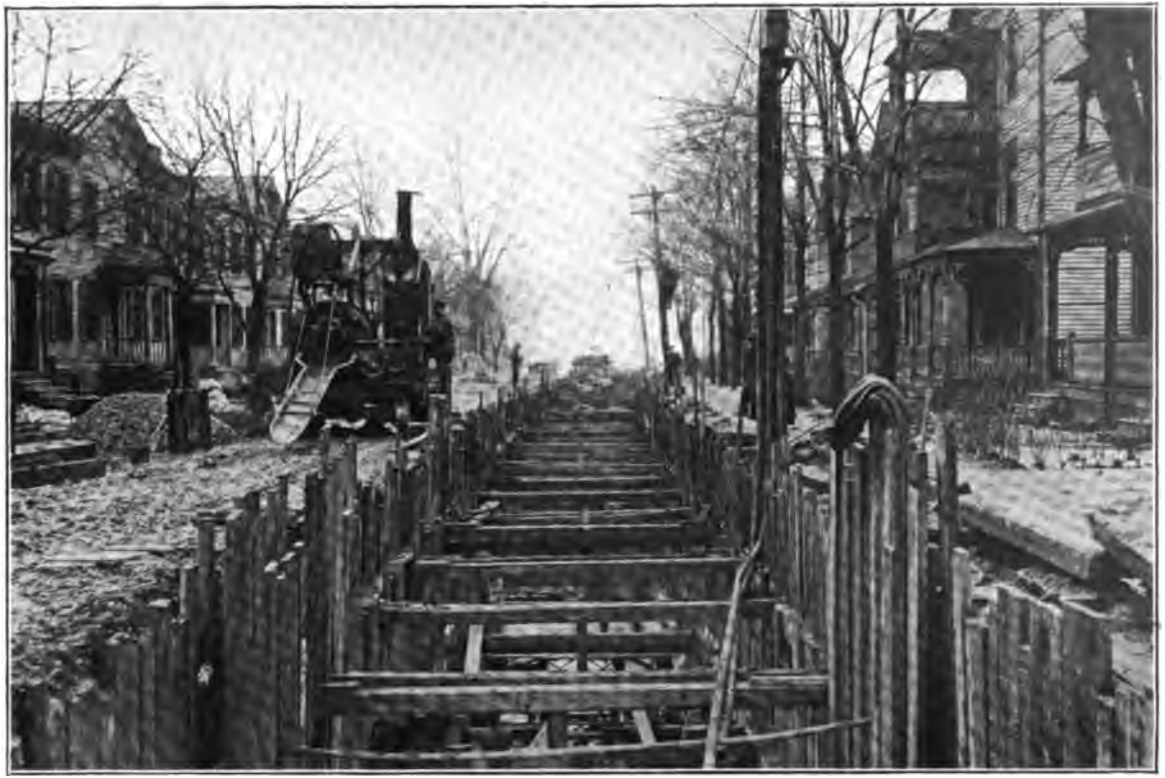
Construction of the South Street relief conduit from Franklin Avenue to the South Meadows was begun in December, 1916, and to March 31, about 850 feet of tunnel was driven beneath Olds Place and South Street and partly lined. This work should be completed by midsummer, and with the construction of additional catch basins on Franklin Avenue, should entirely prevent any flooding on this street.

Attention is called to the comparatively large amount (over $18,000) spent in replacing about 4000 feet of old and inadequate sewers in Ann, Grove, Lewis, Park, Pleasant and Winthrop Streets.

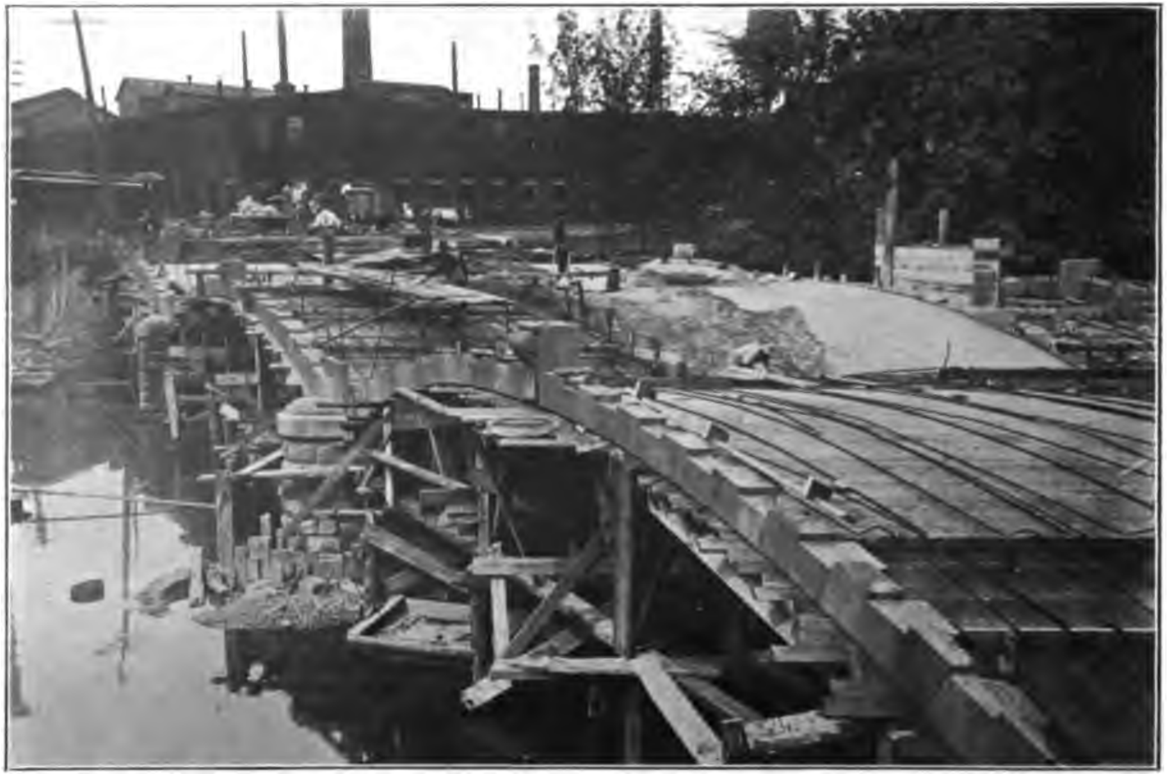
Attention is called to the large portion of the cost of all sewer construction borne by the city, the figures for the past three years being as follows:

Year ending	Total Cost	City's Share	Paid by Property
March 31, 1915	$192,035.45	$84,330.49—43.8%	$107,704.96—56.2%
March 31, 1916	110,909.59	39,087.48—35.1%	71,822.11—64.9%
March 31, 1917	159,290.18	72,397.98—45.4%	86,892.20—54.6%
Total for 3 years	$462,235.22	$195,815.95—42.4%	$266,419.27—57.6%

In short, during the past three years the city at large has paid over 42% of the total cost of new sewer construction. This fact should be borne in mind in making assess-



GULLY BROOK CONDUIT UNDER CONSTRUCTION—BROOK STREET



DURING CONSTRUCTION OF BRIDGE OVER PARK RIVER AT CAPITOL AVENUE ments to the end that the city should not be assessed for any portion of the cost of sewers which are strictly local in their benefits.

Work contemplated for this year, in addition to the completion of the work as noted above, includes sewers in Enfield, Greenfield, Chapel, Canterbury, Cromwell, George, Chester, Branford, Woodstock, Colebrook, Holcomb and Cornwall Streets and Bartholomew Avenue.

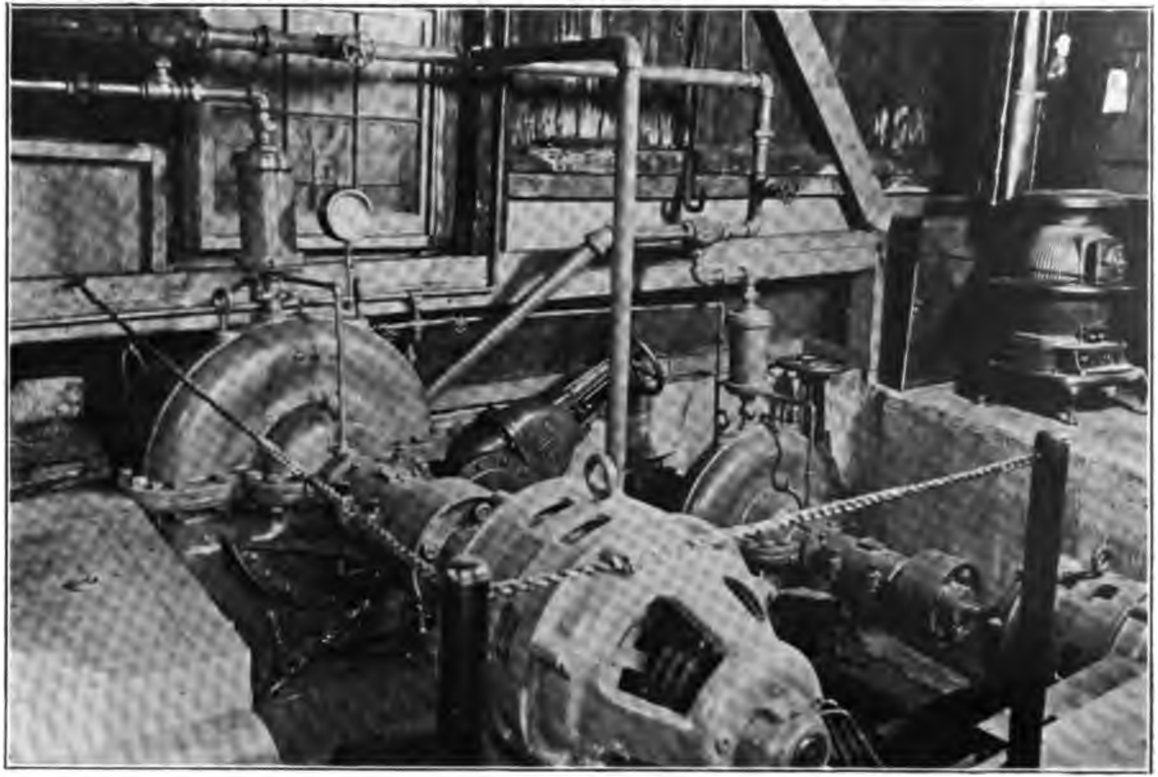
Sewers in Chester, Cromwell and George Streets were laid out in the summer of 1915 but appeals then taken from the assessment have only recently been settled. A storm water conduit will also be built from the railroad culvert south of Fishfry Street to Windsor Avenue and thence northerly to Tower Avenue to provide for surface water which now flows partly in culvert and partly in open brook.

The installation of the two 12-inch centrifugal pumps at the Sheldon Street sewage pumping station, a contract for which was let to the Goulds Mfg. Co. of Seneca Falls, N. Y., in March, 1916, was completed during the summer. These pumps have been in operation for a few days during the high water in the latter part of March, 1917.

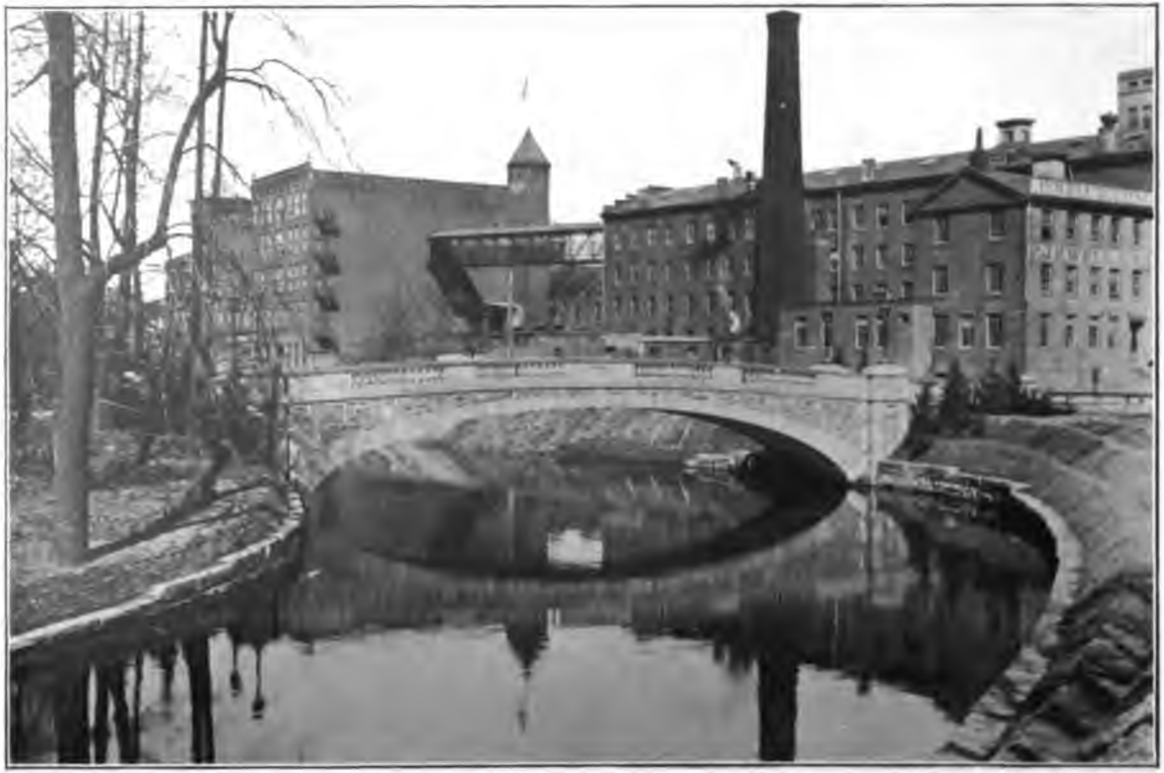
This brings up the matter of a new sewerage system and pumping station for the entire Colt Meadow District. The conditions here are fully described in "East Side Flood Protection Report", pp. 79-82. I would, however, recommend that the trunk sewer be through Van Block Avenue and Masseek Street with a pumping station in the vicinity of Masseek Street and Huyshope Avenue. This sewerage system should be immediately laid out and built on account of proposed street paving in this district. The sewer in Charter Oak Avenue is extremely shallow and every hard rain leaves water standing on the surface of the street. A new sewer in this street should be part of a comprehensive plan for the whole district and certainly should be built before more paving is laid.

Attention is called to the recommendations in the department report for the year ending March 31, 1908, regarding the purchase of materials for sewer construction by the city: "During the past six years, the Department of Engineering has had charge of the construction of $100,000 worth of sewers per year. In view of the magnitude of this work one cannot fail to be impressed with the hand-to-mouth policy followed in the purchase of materials for these contracts. All of this work is done by private contractors, each contract being awarded to the lowest responsible bidder after proper advertisement. A large proportion of the cost of this work is paid for by the abutting property owners, the only exception being in the construction of large interceptors paid for by the city at large, as the benefits are general rather than local.

"A great many of the sewer contracts are small, involving expenditures of but a few thousand dollars. The sewer contractors buy the materials where and when they please, often in small quantities, especially when the contracts are small, as they are in many cases. By this policy no materials for sewer construction are kept on hand, in fact the orders for it are not even placed until after the award of the contract. This results under ordinary circumstances, in a vexatious delay of several weeks, waiting for materials with which to begin work. This method from the city's standpoint is an unsatisfactory as it is expensive. I cannot see why the city with its unlimited credit, should not buy in large quantities, directly through the Board of Contract and Supply, all of the materials and supplies used in sewer construction and maintenance, rather than in small quantities through private contractors with limited capital and credit. I cannot see any reason or excuse why the city should pay a second commission on this material to each contractor in addition to the regular dealers' commission. By purchasing directly from the manufacturers or dealers, the city would not only save the second profit now paid the sewer contractors, but it would obtain the further and greater advantage of buying in large quantities with a large financial backing. In my judgment, all vitrified tile, brick, cement, sand, crushed stone, manhole frames and covers, lumber, etc., used in sewer construction, should be purchased by the city, in large, preferably yearly quantities. During the latter part



SHELDON STREET PUMPING STATION—NEW SEWAGE PUMPS



TRUMBULL STREET FOOTBRIDGE OVER PARK RIVER
Completed June, 1916

of each construction season, the Department of Engineering should make requisition on the Board of Contract and Supply for the material needed for the next season's work. If the Board of Street Commissioners would pool their interests with the Department of Engineering in the purchase of supplies, even better figures would be obtained and greater economy would result.

"While the crushed stone and sand used in the construction and maintenance of the streets of Hartford are purchased in large quantities, under contract, a great deal of the material used in the construction and maintenance of catch basins, sewer manholes, bridges, culverts, etc., in charge of the Street Department, is purchased in small quantities and undoubtedly at higher prices than if bought in larger quantities. These two departments have charge of an average annual expenditure of about $500,000, and I believe a great financial saving would result in carrying out the policy here indicated. A further advantage would obtain from the purchase of the materials in advance of the commencement of the work, thereby eliminating the present vexatious delays in waiting for deliveries oftentimes greatly interfered with in transit."

In view of the delay experienced in the deliveries of materials during the past year it would seem that the arguments advanced then apply with still greater force at the present time.

CULVERTS.

One reinforced concrete culvert was constructed in Victoria Road at the crossing of Folly Brook, and it is proposed this year to build a similar one in Linnmoore Street near Hillside Avenue where Cemetery Brook crosses.

BRIDGES.

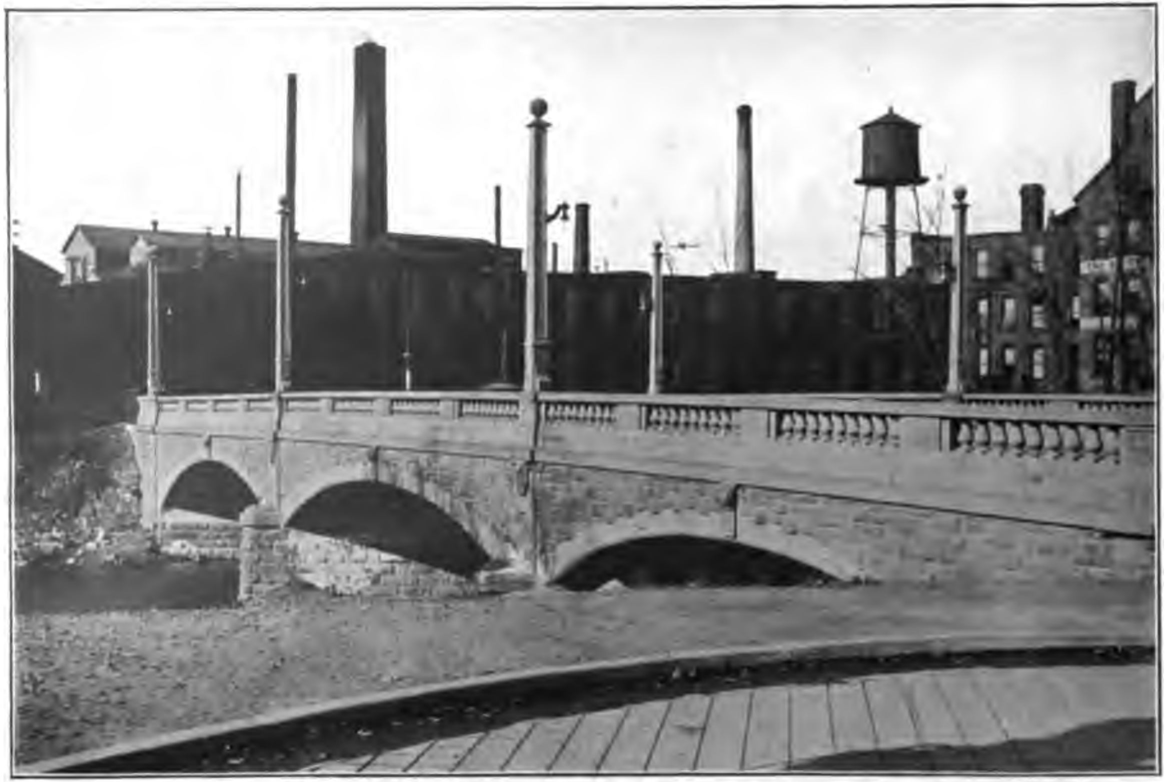
When work was suspended in December, 1915, the Trumbull Street footbridge had been completed up to the sidewalk level, leaving the stone balustrades and the walk surface yet to be placed. This work was completed during the spring and the bridge opened to travel in June.

Work on the Capitol Avenue bridge over Park River had so far progressed that the two abutments were finished and the construction of a temporary timber bridge begun before March 31, 1916. This temporary bridge was opened to traffic May 11, and the removal of the old steel bridge begun on that date. The construction of the new bridge involved the laying of a new double track by The Connecticut Company from Park Terrace to Sigourney Street, and the laying of new curbs and sidewalks on the approaches at each end of the bridge. The trolley car made its first appearance on this bridge on December 17, 1916, and vehicular traffic was turned across it on January 8, 1917. The balustrades were completed on January 23, when work was suspended, leaving some pointing, the washing-down of the stone facing, and the setting of the concrete lamp and trolley poles yet to be done.

A novel feature of this bridge is the provision by means of openings through two of the arches for the disposal of snow. These openings are 2 feet 6 inches wide and 9 feet long, the greater dimension being parallel to the curb, and are fitted with cast-iron covers. By the use of a temporary heavy plank cover a team may be driven so as to leave the wagon over the opening, the cover removed and the snow dumped through. If the snow is brought by sleighs or by trolley cars it will, of course, be shoveled through the opening without the use of the temporary cover.

During the construction of the bridge duct lines were laid across it underneath the roadway by The Hartford Electric Light Company, The Connecticut Company and The Southern New England Telephone Company, and below the north sidewalk a 12-inch water main was placed by the Water Department.

Detail plans were prepared for the bridge across Park River near Bonner Street, for which $18,000 was appropriated at the election in April. The construction of this bridge involves the digging of a new channel for the river, which work was to be done by the Liberty Street Realty Company. It was not done, however, and no steps were taken to build the bridge.



CAPITOL AVENUE BRIDGE OVER PARK RIVER
Completed June, 1917

PAVING DIVISION.

IMPROVED PAVEMENTS.

For the first time since the year 1899 the city was able to lay two miles of pavement without petition from abutting property owners. This Amendment to the Charter, passed at the last session of the Legislature, raised the limit from one to two miles, and it has since been raised to four miles by the Assembly of 1917. The city will now be able to improve many of its main arteries of travel and streets carrying heavy traffic by the laying of an improved pavement to replace the unsatisfactory macadam.

The streets paved with sheet asphalt were as follows:

Albany Avenue—Magnolia Street to Woodland Street.
Church Street—Trumbull Street to Union Place.
Connecticut Boulevard—State Street to Ferry Street.
Maple Avenue—Jefferson Street to Franklin Avenue.
Park Street—Main Street to Zion Street.

Following the custom of the past three seasons, the city undertook the setting of the curb and walk on the streets to be paved, and let the work in one contract to The Miller Sidewalk Company. In the case of Maple Avenue, the curbs and walks on each side were set back an average of six feet and set to a new grade. This widening gave a roadway width of 48 feet, which, with the paving of the two large street intersections, one at Maple and Retreat Avenues, the other at Franklin Avenue, Maple Avenue and Morris Street, gives a very pleasing effect and ample roadway space for the heavy traffic, Maple Avenue being one of the principal avenues of entrance to the city.

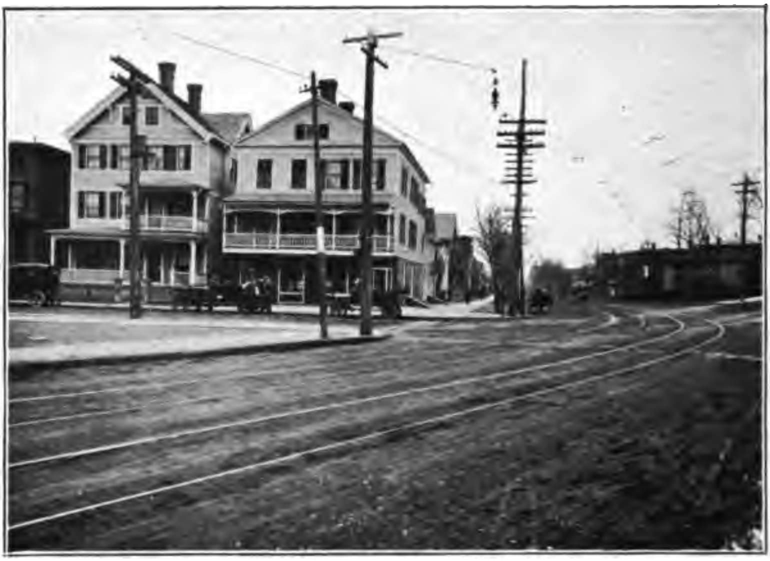
In the case of each of the streets named above, underground work of a more or less extensive nature was installed before paving operations began, so that taking the above in conjunction with curb work and track work, in most cases the actual paving work was a small proportion of that necessary in order to improve the street. A more detailed reference to Park Street follows: This street may be cited to explain the conditions obtaining in the work of paving a street of this character. No one unless actually associated with the undertaking can hope to appreciate the magnitude and complexity of the work involved. In Park Street new sewers were built, new water mains laid, new gas main installed, duct lines built by The Hartford Electric Light Company, The Southern New England Telephone Company and The Connecticut Company. Fences were also set back and steps rebuilt in the section between Broad and Zion Streets. In the case of the sewer, the water, the gas, the electric light, and the telephone, either new services were laid to serve each property, or existing laterals were repaired. The roadway was widened at the expense of The Connecticut Company. This required the relaying of all curbs and walks and the relocating of all poles, and necessitated the removal of many trees which previously stood between the curb and the walk. All catch basins were rebuilt and many new ones installed, and at all intersecting streets the curb corners were cut back to longer radii. The single street railway track was removed and new double tracks laid in accordance with the standard construction for Hartford, which is one of the most thorough and expensive used in this country. The work incident to the paving of the street, which is only 0.89 of a mile in length, involved the digging of 9.55 miles of trenches by all parties concerned, exclusive of the excavation for the pavement foundation. The total cost of all the changes and improvements on Park Street was $205,835, of which amount the paving was about one-fifth, or $41,049.

The new improved pavement laid on the five streets named above amounted to 51,743.2 square yards, and the cost to the city and to property owners was $59,022.92. The city now has 15.49 miles of improved pavement, the total area being 382,535.42 square yards.

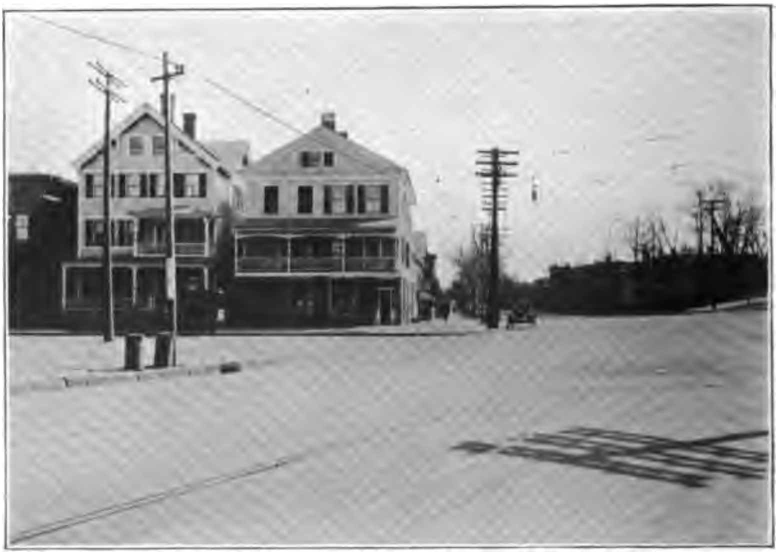
Tables giving various and valuable statistics on paving work in this city are appended to this report.

RESURFACING.

The following streets or portions of streets were resurfaced with sheet asphalt during 1916:



MAPLE AVENUE AT JUNCTION WITH FRANKLIN AVENUE
Before Paving



MAPLE AVENUE AT JUNCTION WITH FRANKLIN AVENUE
Showing New Sheet Asphalt Pavement

Main Street east of South Green and west of railway tracks.
Wyllys Street, along the south end of South Green.
Capitol Avenue, from Park Terrace to Sigourney Street.

The resurfacing on Capitol Avenue was in connection with the building of the new concrete arch bridge over the Park River, the building of a roadway 38 feet wide across the bridge, and the installation of double tracks in place of the old single-track street railway. The resurfacing covered 2,959.5 square yards at a cost to the city of $3,148.81. These figures do not include the yardage of, nor the cost to The Connecticut Company.

PAVING REPAIRS.

In making repairs the past season 3,256.66 square yards of sheet asphalt were laid. In addition to this, repairs were made in a number of places in granite block pavements, and a small amount of concrete foundation was renewed. The cost for repairs to improved pavement streets was $4,360.47. The average cost per square yard, proportioned over the 330,476.22 square yards of improved pavement in the city on April 1 1916, was $0.013.

PAVING PROPOSED FOR 1917.

It is expected that the following streets will be paved during 1917:

Street	Section	Pavement
Albany Avenue	Woodland Street to State Road	Asphalt
Ann Street	Allyn Street to Main Street	Asphalt
Capitol Avenue	Whitman Ct. to Washington Street	Asphalt
Ferry Street	Front St. to Conn. Boul'd	Asphalt and granite block
Huyshope Avenue	Charter Oak Avenue to Masseek Street	Asphalt
Kilbourn Street	Front St. to Conn. Boul'd	Asphalt and granite block
North Street	Windsor Street to Village Street	Asphalt
Pleasant Street	Windsor Street to Winthrop Street	Granite block
Sequassen St.	Huyshope to VanDyke Aves.	Asp. and gran. block
Sheldon Street	Commerce Street to Van Dyke Avenue	Asphalt
Van Dyke Avenue	Sheldon Street to Masseek Street	Asphalt
Windsor Avenue	Capen Street to Westland Street	Asphalt

Windsor Avenue will be resurfaced on the east side from Main Street to Canton Street.

CORNERS CUT BACK TO LONGER RADII.

In connection with the paving work on Albany Avenue, Church Street, Maple Avenue and Park Street, all corners at intersection streets were cut back and curb of longer radii installed.

Other intersections improved were as follows:

Capitol Avenue, east corner of Sigourney Street.
Jewell Street, west corner of Trumbull Street.
Jewell Street, east and west corners of South Ann Street.
Homestead Avenue, all four corners of Sigourney Street.
Elm Street, south corner of Trinity Street.
Wyllys Street, east corner of Congress Street.
Wyllys Street, corners at east and west ends of South Green.

In all about 95 corners were improved in appearance and made safer for traffic.

TRACK WORK.

Track profiles were furnished The Connecticut Company and the work installed under the inspection of this department as follows:

Main Street—Tracks renewed and placed on ten-foot centers from Charter Oak Avenue to Atheneum Street South.

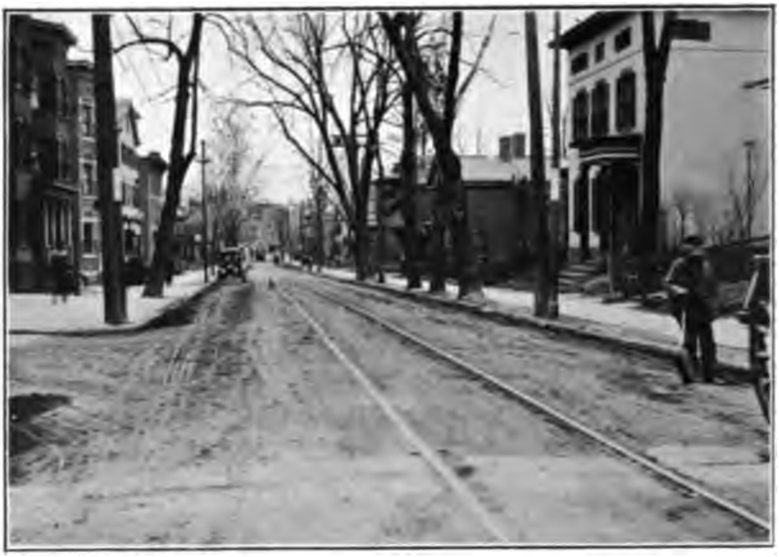
Albany Avenue—New tracks installed the whole length from Magnolia to Woodland, and new special work at Vine Street and Albany Avenue.

Connecticut Boulevard—Tracks relined and brought to a new grade from State Street to Ferry Street.

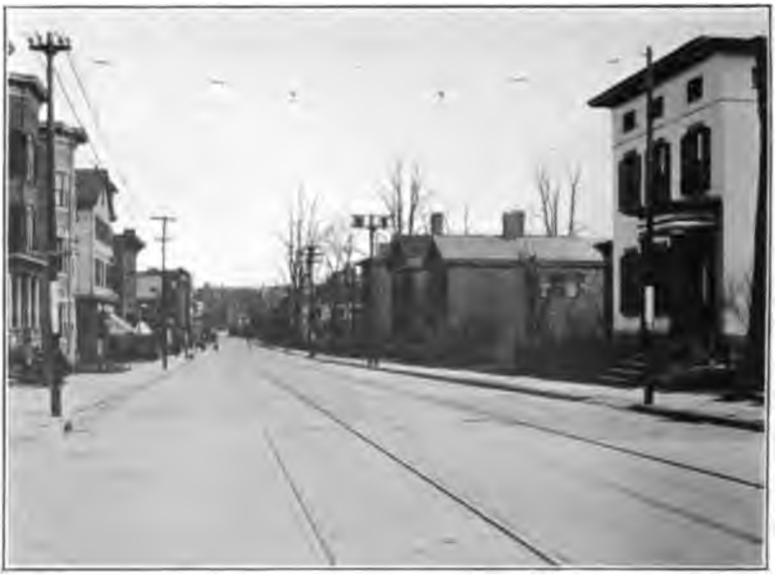
Maple Avenue—New tracks installed from Retreat Avenue to Morris Street.

Park Street—New double tracks replaced the single track from John to Zion Streets, except for the crossing at Broad Street.

New special work was installed at Lafayette Street and at Zion Street, and on Zion Street the double tracks were extended south about 300 feet. The Connecticut Company was granted permission to extend the double tracks from Zion Street west to Laurel Street, with new special work



PARK STREET EAST FROM WADSWORTH STREET
Showing Roadway Before Widening and Paving



PARK STREET EAST FROM WADSWORTH STREET
Showing Double Tracks, Roadway Widened and Paved with Sheet Asphalt

at Laurel Street and also at Park and Main Streets, but owing to the lateness of the season this work was not attempted.

Capitol Avenue—New double tracks replaced the single track between Park Terrace and Sigourney Street on the new bridge over the Park River.

A new crossover was installed between Babcock and Putnam Streets. New rails were laid in the curve at Trinity Street.

STREET RAILWAY CONSTRUCTION PROPOSED FOR 1917.

Albany Avenue—Rails will be renewed from Woodland Street to the State Road, and new double track special work installed at the intersection of Blue Hills Avenue.

Huyshope Avenue—Rails will be renewed from Charter Oak Avenue to Masseek Street and new double track extended from the switch on Charter Oak Avenue southerly and around the corner about 150 feet into Huyshope Avenue.

Windsor Avenue—Rails will be renewed from Capen Street to Westland Street.

UNDERGROUND SYSTEM.

Owing to the increase in the mileage of pavement now laid each year over that laid some five or six years ago, the total length of new pipe lines and conduit has greatly increased, and the detail work in assigning locations for underground construction has grown in like proportion. It has been found expedient to use a scale twice as large as that first used when it became necessary to have maps of streets showing the probable positions of existing pipes and ducts. The card catalogue system put in use last year giving the street, company, location and size of ducts, and the date the location is assigned, has simplified the detail work. A separate letter file of the underground correspondence with the different corporations gives a business basis for instant reference to assigned locations.

Incident to the two miles of improved pavement laid in 1916, over six miles of ducts and pipe lines were installed. Locations for these conduits and mains had to be assigned with some care and thought to avoid serious conflict in construction and also with the idea in mind of future needs in the street. It sometimes happens that this endeavor to assign systematic locations comes too late, as in the case this year in Park Street where the space between the street line and curb line had to be utilized owing to the very irregular positions of the old mains and conduits in the roadway.

As the city grows and it becomes imperative to enlarge conduits and mains, this location between street and curb lines may be needed. This fact should guard against encroachments that might in the future prove to be obstacles. Larger cities have found it necessary to use this space back of the curbs for sewers and water mains.

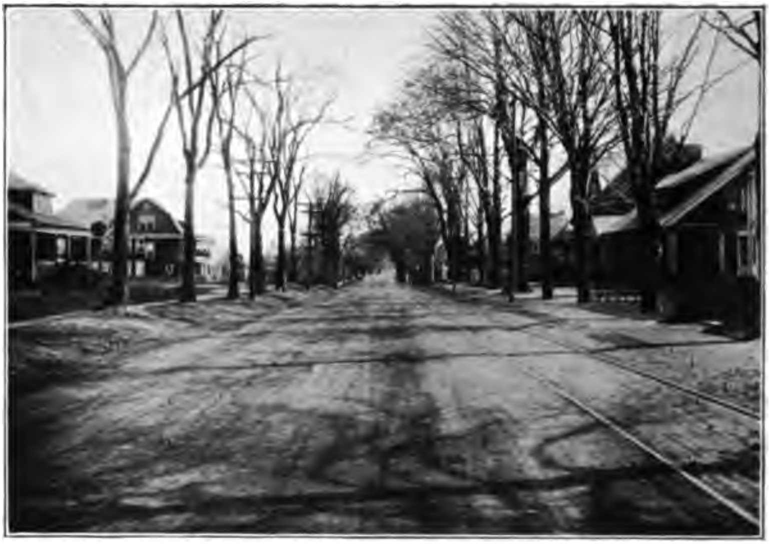
In order to efficiently deal with the underground problem for 1917, over forty maps have been made and locations assigned for the underground construction to be laid in connection with the two and three-quarters miles of pavement contemplated this coming season. During the year in many outlying streets for which no maps exist, locations were assigned by means of a definite system which places certain corporations on a given side of a street and on a line parallel to, and a certain distance from the curb.

The total number of maps drawn to the enlarged scale showing the probable location of old pipes and conduits, and the exact location for recent construction, has reached one hundred and twenty-five.

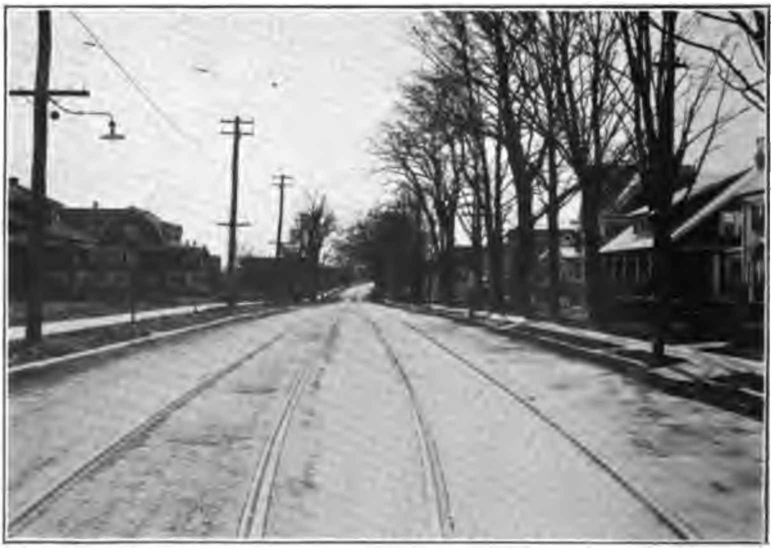
CONCRETE PAVEMENTS.

A one-course concrete pavement was laid on Ridgefield Street from Greenfield Street to Plainfield Street, and on the west roadway of Scarborough Street from Asylum Street northerly 1200 feet. The pavement was made of a 1-2-4 mixture, eight inches thick at the center and six inches thick at the sides. Cross joints of two layers of three-ply tar paper were provided every 40 feet and wire mesh reinforcing was placed three inches below the surface.

A contract was let for this work late in the season when it became evident that the city would not be able to com-



FAIRFIELD AVENUE
Before Improvements



FAIRFIELD AVENUE
Showing New Curbs and Walks with Tracks on Center Location

plete it, owing to the shortage of men. All materials were furnished by the city and the work was done on a square-yard basis, it being practically a labor-furnishing proposition.

The pavement cost $1.70 per square yard complete including excavation, forming of sub-base, and covering with canvas and straw as a protection against freezing. This type of pavement appears well adapted to roadway similar to Ridgefield or Scarborough Street where the building is on one side only and where the houses are likely to be located far apart, but I do not consider it satisfactory for business streets where openings are necessary and frequent.

SURVEY AND STREET DIVISION.

During the past year the usual variety of work was handled by this division. From April until December the activities of the Street Department require a large portion of the time, as practically all of the engineering necessary in connection with new and repair work done by the city's men employed on the street work is assigned to this division. Lines and grades are given for all street grading, for the installation of catch basins, location of pole lines, for sidewalk and curb construction, and similar work. Many matters referred by the Board of Street Commissioners for examination and report requiring work both in the field and in the office are also handled by this division.

Many calls for work of an engineering nature were received from the Board of Park Commissioners in connection with new construction and changes which are constantly taking place in the several parks.

Throughout the year surveys, plans and profiles are made for the layout and acceptance of new streets and for changes in street, building (and veranda lines and grades in existing streets, such work being done on petitions from individuals or on recommendations of the Board of Street Commissioners or the Commission on the City Plan.

MERESTONES.

Each year additional merestones are set to define the street lines on newly accepted streets and on existing streets as needed. These stones of reinforced concrete are manufactured at the City Yard on Sheldon Street by employees of this department who afterward set them in position at the designated points. Twenty-nine merestones were made last season and these, together with twenty which were on hand, were set at various street intersections.

NEW STREETS.

Layouts were prepared for the acceptance of the following new streets:

Broad Street from White Street to Maple Avenue.
Bulkeley Street from Main Street to Trumbull Street.
Cambridge Street from Rosemont Street to Ashford Street.
Chapel Street from Trumbull Street to Bulkeley Street.
Eastford Street from Westland Street to Love Lane..
Elizabeth Street from Girard Avenue to Asylum Street.
Guilford Street from Bethel Street to Brook Street.
Hampton Street from Earle Street to Rosemont Street.
Hudson Street from Buckingham Street to Wells Street.
Kensington Street from Hampton Street to Windsor Avenue.
Lyme Street from Tower Avenue to Pomfret Street.
Montville Street from Hampton Street to Windsor Avenue.
Mountford Street from Broad Street to Henry Street.
Pomfret Street from Palm Street to Lyme Street.
Prospect Street from Arch Street to Sheldon Street.
Queen Street from Flower Street to Beach Street.
Rosemont Street from Cambridge Street to Hampton Street.

NEW STREET, BUILDING AND VERANDA LINES.

Layouts were prepared for new street, building or veranda lines in lieu of existing lines on the following streets, or on portions of the same: Bloomfield Avenue, Church Street, Hillside Avenue, Kenneth Street, Morgan Street, Plymouth Street and White Street.

NEW GRADES.

New grades were established in lieu of existing grades on portions of Greenfield Street, Hamilton Street, Tredeau Street and Tower Avenue.

SIDEWALK AND CURB LINES.

Layouts were prepared for sidewalk or curb lines on the following streets: Ashford, Colebrook, Cornwall, Earle, Flatbush, Freeman, Glendale, Greenfield, Holcomb, Kibbe, Monroe, Otis, Salisbury and Uphill Streets.

OFFICE DIVISION.

The work of this division becomes more extensive each year as the Department and the facilities which it offers become better known and appreciated by the public. This work which can be classified only as general office work has now attained such proportions that it is only by the constant revising of old indexing systems and the installation of new ones that efficient service can be rendered.

PROPERTY MAPS AND REAL ESTATE TRANSFERS.

The large real estate map of the city comprising one hundred and thirty-six separate sheets has been revised and rearranged in many sections. Copies of these sheets were made according to the annual custom for the Board of Assessors. These copies show all buildings and the names of all property owners as on record October 1.

Thirty-one hundred and fifty-eight transfers of property as indicated by deeds filed with the Town Clerk were recorded on this property map the past year. This is an increase of 14% over that of last year. Contemplated improvements and street changes in the downtown section of the city have necessitated during the past year more than the ordinary amount of title searching.

HOUSE NUMBERS.

Four hundred and seventy-five house number cards were issued during the year. Many of the noticeable irregularities in street numbering have been corrected during the past year and a gradual improvement in this respect is noted. Twenty-five real estate sub-division plans which have been filed with the Town Clerk were plotted in the map book used in connection with the land records.

STREET, BUILDING AND VERANDA LINES.

Six hundred and twenty street, building and veranda lines were staked, either on calls from property owners and builders or as required by permits issued by the Building Inspector.

Nine hundred and two new buildings of an assessable value were located, measured and plotted on the property map. This is an increase of 17% over the previous year.

STREET SPRINKLING.

For this season the Board of Street Commissioners voted an increase of 1c per front foot in the rate of assessment for street sprinkling and oiling which made necessary the compilation of an entire new assessment aggregating approximately seventeen thousand separate ownerships. This, together with an increase of 3.72 miles of sprinkled streets, made the largest and most difficult assessment yet compiled by this Department.

Under the present method of paying for the cost of street sprinkling, every individual property owner is charged with the cost of flushing, oiling or sprinkling that portion of the street represented by the street frontage of his property and for half the roadway width. As our streets become improved, the extent to which they are treated for dust suppression is steadily increasing and will so continue until such time as every possible street in the city is developed.

During the past fiscal year one hundred and five miles of streets were treated, involving two hundred and ten miles of property frontage since the assessment applies equally on both sides of the street. It is necessary in assessing for this work to know the latest owner of each piece of property on the streets sprinkled, the exact frontages and the addresses to which bills are to be sent. The rate or charge per lineal front foot is decided upon by the Board of Street Commissioners and from this data over seventeen thousand individual assessments are figured in this office, the bills for which are later made out and mailed by the Street Department and the amounts thereof received by the City Collector.

Street sprinkling is not only of benefit to the owners of abutting properties but is essential to the economical upkeep of the roadway and an advantage to the general traveling public. I therefore believe that it would be perfectly logical and desirable if this cost for dust suppression could be looked upon as an item of general street maintenance, as the street cleaning and repairing, and, as such, taken care of and paid for out of the general tax. Based upon the present Grand List and the present cost for street sprinkling, the effect on the tax rate would be but a small fraction of a mill. If such a charge were made it would obviate the necessity of preparing and collecting these special bills and would result in the saving of much valuable time which could be used to better advantage. All of which would mean the saving of a considerable sum to the city at large.

CHEMICAL AND TESTING DIVISION.

During the year ending March 31, 1917, the various tests on municipal supplies, such as coal, asphalts, asphaltic mixtures, fluxes, road oils, cement, sand, rubber hose, tree spraying compounds, insulated wire and joint fillers were made by this Department. The laboratory extended the scope of its operations so that in addition to the tests made on the materials previously named, soap, cylinder oils, lubricants, greases, gasoline and gravel were also analyzed and tested. As usual, the greatest number were made on asphalt for the plant control. The tests during the past year numbered four hundred and fifty-five. One hundred and sixty days were spent at the two asphalt plants.

An Emerson Fuel Calorimeter was added to the laboratory equipment. This apparatus is used in obtaining the British Thermal Units or heating value of coal principally. The calorimeter as a practical device has a two-fold value: first, it makes possible the buying of coal on the heat unit basis, and, secondly, it discloses inefficiency or wastefulness of operation. The calorimeter guarantees an equitable return to the coal purchaser.

The manipulation of the calorimeter and the principle involved are simple. The thermal value of a fuel is determined by burning a definite amount of it in a steel bomb which is charged with oxygen to secure complete combustion and placed in a tank containing a known amount of water. The heat liberated by the burning fuel is transferred to the water. The calorific value of the fuel is ascertained by noting the rise in temperature recorded on a standardized thermometer immersed in it. The heating value in British Thermal Units can then be readily computed.

A muffle furnace was also purchased. This apparatus is electrically heated and is capable of attaining a temperature of 1800 degrees F. It is used principally in incinerating coal samples for the ash content.

A very useful addition is a distilling apparatus which is capable of delivering one gallon of pure water per hour.

A fume hood has been provided for the laboratory also, so that all obnoxious odors which formerly caused annoyance throughout the building are drawn out of doors by means of an electric fan.

Linoleum has recently been laid on the concrete floor, so that the laboratory is greatly improved and much more comfortable in appearance.

ELECTRIC SIGNS.

The Electric Sign Ordinance which went into effect the past season necessitated the investigation and measurement of all such signs as had been previously erected. The extent of its projection over the street line, its clear distance above the sidewalk, and the area in square feet of its projection over the street line were ascertained in the case of every sign. The licensing of all these signs in a comparatively short period required considerable attention on the part of this Department for the time being. Now that all existing signs have been properly provided for, the determination of the essential characteristics of new signs, as licenses for their erection are applied for, becomes a routine matter.

TRAFFIC RELIEF.

During the past fiscal year considerable preliminary work was done in connection with various street extensions and street widenings along a comprehensive plan for the relief of the traffic congestion about our business center, as advocated by Mayor Hagarty in messages to your Honorable Court. These hoped-for improvements included the extension of Capitol Avenue from Willow Street under the railroad to connect with the Boulevard near Arbor Street; the extension of Prospect Street across the Park River to Sheldon Street connecting with South Prospect Street; the extension of Hudson Street northerly from Buckingham Street across Capitol Avenue and Elm Street to connect with Wells Street at the site of Daniels' Dam; the widening of Church Street from Main Street to Union Place, and the extension of this street to Garden Street opposite Ashley Street; the widening of Morgan Street from Front to Main Streets and the establishment of a new street to extend from Main Street opposite Morgan Street diagonally through the block bounded by Main, Church and Trumbull Streets to the junction of Church and Trumbull Streets, with a branch to the north intersecting Trumbull Street opposite Chapel Street.

The aim in these projects is to make possible through and convenient arteries of travel running north and south substantially parallel to Main Street, and improving facilities for travel east and west in the general direction of Asylum Street. Each of these projects called for extensive surveys and special maps and required weeks of work both in the field and in the office.

The street extensions planned call for the destruction or removal of about forty buildings in all and the remodelling of sixty others. These structures vary in importance from inexpensive frame tenements to modern brick or stone buildings of considerable value.

Street widenings and extensions should be brought about as soon as the necessity for them is apparent, for generally speaking, in matters of this kind delays are costly.

MERESTONES.

As previously stated, forty-nine reinforced concrete merestones were set during the past season to define street lines.

There are a considerable number of streets still unmarked and it is unfortunate that the funds available for this work will not permit of a more active campaign along these lines, for at the present rate of progress it is almost impossible to keep up with the new streets which are added each year, and no opportunity is afforded for marking older streets on which stones have never been set.

When these stones have been once placed they are used again and again, not only by this office, but by other City Departments as well as by private engineers and surveyors.

PHOTOGRAPHY.

The photographic work of the Department continues to be an important branch of our service. A complete equipment makes it possible to handle all parts of the work quickly and efficiently.

Views showing conditions before and after improvements, and picturing special methods of construction, make valuable records which could not be as satisfactorily recorded in any other way.

Photographs are taken when desired and furnished to the prosecuting attorney in connection with City Court cases, and similar assistance is afforded the Corporation Counsel in accident suits in which the city is the defendant.

A projecting lantern is now used in special cases in place of maps or plans in presenting matters before the Board of Street Commissioners. This is a decided improvement and saves considerable time, since each commissioner and all interested parties present may view the copy of the plan as projected on the screen, and the important points can be explained to all simultaneously.

PRIVATE DRAINS.

During the year sixty-six licenses were issued to drain layers for the laying of private drains in accordance with the City Ordinance and the rules and regulations of the Board of Street Commisioners. This is an increase of twenty-two over the preceding year and the largest number of licenses ever issued to drain layers in a single year. The increase of licenses issued to non-resident drain layers doing work in this city is noticeable.

Up to the present time, a total of 7758 permits have been issued by this Department (an average of 554 permits a year for the past fourteen years) for the laying of new drains and repairing of old and existing drains. During the season 792 permits were issued to drain layers, an increase of 71 over the number issued the preceding year, and the largest number of permits ever issued in any single year.

The laying of drains may be classified under two heads as follows: New work and repairs. Under the first head there are several types, viz: drains which are connected at the curb line, those connected at the main sewer, and others of sizes either larger or smaller than the regulation 6-inch house drain. Under the second head (repairs) come the taking up of old tile and relaying it with new, substituting cast iron pipe for old tile drains, the lowering of existing drains and the flushing and cleaning of the same.

Of the total number of permits issued during the past year, five hundred and fifty-one were for new house connections, an increase of forty-six over the preceding year. Of these five hundred and fifty-one new drains, three hundred and sixty-two were for curb connections, one hundred and twenty-nine for connections at the main sewer (these being the 6-inch size) 3 for 4-inch, 39 for 8-inch, 16 for 10-inch, 1 for 12-inch and 1 for 15-inch. Of the total number of 6-inch drains noted above, 8 were for garage drains only and 8 for lot drains. A new 12-inch cast iron connection was laid under the head of "new connections."

Of the 74 permits issued for the repairing of old or existing drains, 38 were for general repair work, 30 were for lowering old drains, 3 were for replacing old drain with 5-inch cast iron pipe, 1 for relaying old drain with 6-inch cast iron pipe, and 2 for relaying old drain with 8-inch cast iron pipe.

The public service corporations which are placing their wires in underground conduits took out 100 permits to drain their manholes. This number is divided as follows: 30 permits to The Connecticut Company, 45 to The Hartford Electric Light Company and 25 to The Southern New England Telephone Company. To The Connecticut Company 3 permits were issued to connect their track drains with the city catch basins or main sewers. To The Board of Water Commissioners 52 permits were issued. Of this number 34 were for hydrant drains and 18 for blow-offs.

The quality of the work in laying drains has materially improved owing to the supervision which this Department maintains over all this work. The inspection of drains assures the property owner of a satisfactory drain and saves the city much trouble and expense in sewer repairs.

Sketches and notes are made during each inspection giving the depth of the connection below the street surface or curb level, an exact location at main sewer or curb line and at the building which the drain serves. Where the drain is laid from the main sewer in the street, an exact location is made of all underground ducts and mains encountered in laying the drain. This information is transferred and plotted on the underground maps and is used when assigning locations for new pipe lines, especially upon the older streets of this city, for which no maps previously existed that would show the location of underground structures.

Under the drain layers' rules, sewers or extension of sewers were built in the following streets: Bradford Street Extension, Colonial Court, Commerce Street, Dorothy Street, Earle Street, Edgewood Street and Jewell Court. A sewer system was also laid on the Colt factory property, and another on a private street running from Blue Hills Avenue to Greenfield Street.

A card index system is maintained which contains all necessary data concerning all drains laid and repaired, and all old mains, ducts and sewers encountered while laying drains. The cards of this index system are arranged alphabetically with respect to the streets, thus insuring quick information to any person desirous of it.

NEW STREETS.

Many new streets have been laid out and accepted by the city during the past few years. It is difficult even for those in close touch with these matters to keep up with the rapid changes, and it seems desirable that a list of Hartford streets should be available to readers of this report and such a list in alphabetical order is appended.

SERVICE.

It is the earnest desire of the Department to be of service to the city and the citizens of Hartford in every possible way that such service may rightly be given. The Department is in a position to be of assistance to every member of the community in some form sooner or later, and we wish the people of Hartford to feel free to consult this office at any time when they have questions which they feel we may be able to answer.

About one hundred and twenty-five people daily avail themselves of the privileges which the office affords, many of them appearing so frequently that a business house would look upon them as regular customers. If these people find our service indispensable, many more in similar lines of work might profit likewise if they were but aware of the information which is to be found here and which is at their command, all of it being rendered gratis.

In concluding this report, I desire to express to your Honorable Court my appreciation of the many evidences of your confidence in the Department and of the many courtesies extended by the various departments and officials as well as of the support and coöperation of my associates.

Respectfully submitted,

ROSCOE N. CLARK,
City Engineer.

LIST OF HARTFORD STREETS.

Adams Street—Homestead Avenue to Norfolk Street.
Addison Street—Tower Avenue to Rosemont Street.
Adelaide Street—Wethersfield Avenue to Maple Avenue.
Affleck Street—Allen Place to Ward Street.
Albany Avenue—High Street to Prospect Avenue (City Line).
Alden Street—Wethersfield Avenue to Dean Street.
Allen Place—Washington Street to Summit Street.
Allyn Street—Trumbull Street to Union Place.
American Row—State Street to Central Row.
Amherst Street—Roger Street to Hillside Avenue.
Amity Street—Park Street to Capitol Avenue Extension.
Andover Street—Blue Hills Avenue to Granby Street.
Ann Street—Asylum Street to Main Street.
Annawan Street—Wethersfield Avenue to Franklin Avenue.
Ansonia Street—New Britain Avenue to Fairfield Avenue.
Arbor Street—Orange Street to Capitol Avenue Extension.
Arch Street—Main Street to Front Street.
Arthur Place—Russell Street south.
Ashford Street—Windsor Avenue to Cambridge Street.
Ashley Street—Garden Street to Woodland Street.
Ashton Stret—Heath Street to James Street.
Asylum Street—Main Street to Prospect Avenue (City Line).
Asylum Place—Asylum Street to Farmington Avenue.
Atheneum Street—Main Street to Prospect Street.
Atheneum Street South—Main Street to Prospect Street.
Atlantic Street—High Street to Railroad.
Atwood Street—Asylum Street to Sargeant Street.
Auburn Street—Westland Street to Winchester Street.
Avon Street—Windsor Avenue to North Front Street.
Babcock Street—Capitol Avenue to Park Street.
Baltic Avenue—Clermont Street to Newfield Avenue.
Baltimore Street—Homestead Avenue to Norfolk Street.
Barbour Street—Capen Street to Tower Avenue.
Barker Street—Wethersfield Avenue to Maple Avenue.
Barnard Street—Maple Avenue to Washington Street.
Bartholomew Avenue—Park Street to Olive Street.
Beach Street—Farmington Avenue to Queen Street.
Beacon Street—Prospect Avenue to Farmington Avenue.
Bedford Street—Garden Street to Albany Avenue.
Belden Street—Windsor Avenue to East Street.
Bellevue Street—Canton Street to Sanford Street.
Belmont Street—Wellington Street to Bartholomew Avenue.
Benton Street—Wethersfield Avenue to Webster Street.
Bethel Street—Mather Street to Mahl Avenue.
Blake Street—Bellevue Street to Windsor Street.
Bloomfield Avenue—Albany Avenue northerly to N. W. City Line.
Blue Hills Avenue—Albany Avenue northerly to N. City Line.
Bodwell Street—Wethersfield Avenue to Franklin Avenue.

Bodwell Court—Bodwell Street South and West.
Bolton Street—Wthersfield Avenue to Franklin Avenue.
Bond Street—Wethersfield Avenue to Maple Avenue.
Bonner Street—Zion Street to Ledger Street.
Boulevard—Park River to Sisson Avenue.
Bradford Street—New Britain Avenue to Roxbury Street.
Branford Street—Blue Hills Avenue to Granby Street.
Branford Street East—Blue Hills Avenue to Coventry Street.
Bristol Street—Newington Avenue to City Line.
Broad Street—White Street to Farmington Avenue.
Broadview Terrace—Dart Street to Newington Avenue.
Brook Street—Liberty Street to St. Patrick's Cemetery.
Brown Street—Wethersfield Avenue to Maple Avenue.
Brownell Avenue—Washington Street to Broad Street.
Buckingham Street—Washington Street to Main Street.
Bulkeley Avenue—Park Street to Kibbe Street.
Burlington Street—Blue Hills Avenue to Granby Street.
Burnham Street—Blue Hills Avenue to Canaan Street.
Burton Street—Homestead Avenue to Albany Avenue.
Bushnell Street—Franklin Avenue to Maple Avenue.
Cabot Street—Albany Avenue to Homestead Avenue.
Cambridge Street—Tower Avenue to Ashford Street.
Campfield Avenue—Maple Avenue to South Street.
Canaan Street—Tower Avenue to City Line.
Canterbury Street—Westbourne Parkway to Plainfield Street.
Canton Street—Windsor Avenue to Windsor Street.
Capen Street—Windsor Avenue to Edgewood Street.
Capitol Avenue—Main Street to Willow Street.
Capitol Avenue Extension—Sisson Avenue to Prospect Avenue.
Carpenter Street—Madison Avenue to Bulkeley Avenue.
Case Street—South Marshall Street to Laurel Street.
Catherine Street—Zion Street to Ledger Street.
Cedar Street—Park Street to Buckingham Street.
Center Street—Albany Avenue to Mather Street.
Central Row—Main Street to Prospect Street.
Chadwick Avenue—Park Street to South Whitney Street.
Chandler Street—New Britain Avenue to Dart Street.
Chapel Street—Trumbull Street to Ann Street.
Chapin Place—Wethersfield Avenue east.
Chapman Street—Maple Avenue to Fairview Street.
Charles Street—Kilbourn Street to Morgan Street.
Charlotte Street—Barbour Street to Waverly Avenue.
Charter Oak Avenue—Main Street to Van Dyke Avenue.
Charter Oak Place—Charter Oak Avenue to Wyllys Street.
Chatham Street—Blue Hills Avenue to Granby Street.
Cherry Street—Orange Street to Sisson Avenue.
Cheshire Street—Ansonia Street to Linnmoore Street.
Chester Street—Franklin Avenue to George Street.
Chestnut Street—Albany Avenue to Walnut Street.
Church Street—Main Street to Spring Street.
Clark Street—Capen Street to Westland Street.
Clay Street—Elmer Street to West Clay Street.
Cleveland Avenue—Barbour Street to Windsor Avenue.
Clermont Street—(accepted to Park River) New Britain Avenue to Grand Avenue.
Clifford Street—Maple Avenue to Broad Street.
Clinton Street—Capitol Avenue to Elm Street.
Colebrook Street—Blue Hills Avenue to Granby Street.

Collins Street—Myrtle Street to Woodland Street.
Colton Street—Branford Street to Woodstock Street.
Columbia Street—Capitol Avenue South.
Commerce Street—Sheldon Street to State Street.
Cone Street—Whitney Street to Farmington Avenue.
Congress Street—Wyllys Street to Morris Street.
Connecticut Boulevard—State Street to Morgan Street.
Cornwall Street—Granby Street to Harold Street.
Coventry Street—Tower Avenue to Holcomb Street.
Crane's Court—Windsor Avenue to Bellevue Street.
Crescent Street—New Britain Avenue to Broad Street.
Cromwell Street—Franklin Avenue to George Street.
Crown Street—Webster Street to Julius Street.
Curcombe Street—Wawarme Avenue to Van Dyke Avenue.
Cushman Street—Sigourney Street to Capitol Avenue.
Dart Street (accepted to Chandler Street)—New Britain Avenue to Newington Avenue.
Dartmouth Street—Maple Avenue West.
Dean Street—Annawan Street to Morris Street.
Deerfield Avenue—Albany Avenue to Greenfield Street.
Dexter Street (accepted to Giddings Street)—Clermont Street to Newfield Avenue.
Donald Street—Kennedy Street to Russell Street.
Dorothy Street—Park Street to James Street.
Douglas Street—Winship Street to Maple Avenue.
Durham Street—Palm Street to Westbrook Street.
Earle Street—Barbour Street to Windsor Avenue.
East Street—Albany Avenue to Mather Street.
Eastford Street—Love Lane to Westland Street.
East Raymond Street—Vine Street to Middlefield Street.
Eaton Street—Wethersfield Avenue to Franklin Avenue.
Edgewood Street—Homestead Avenue to Garden Street.
Edwards Street—Spring Street to Albany Avenue.
Elizabeth Street—Asylum Street to North Beacon Street.
Ellery Street—Potter Street to Park River.
Ellington Street—Broad Street to Fairview Street.
Elliott Street—Wethersfield Avenue to Franklin Avenue.
Elliott Place—Elliott Street South.
Ellsworth Street—New Britain Avenue to Crown Street.
Elm Street—Main Street to Trinity Street.
Elm Place—Elm Street to Linden Place.
Elmer Street—Windsor Avenue to Clark Street.
Ely Street—Main Street to Winthrop Street.
Enfield Street—Mather Street to Westland Street.
Essex Street—Maple Avenue to Retreat Avenue.
Euclid Street East—Blue Hills Avenue to City Line.
Euclid Street West—Blue Hills Avenue to Canaan Street.
Evergreen Avenue—Farmington Avenue to West Hartford Boulevard.
Fairfield Avenue—New Britain Avenue to Maple Avenue.
Fairmount Street—East Street to Brook Street.
Fairview Street—Linnmoore Street to Roxbury Street.
Fales Street—Sisson Avenue to Evergreen Avenue.
Farmington Avenue—Asylum Street to Prospect Avenue (City Line.)
Fenwick Street—South Street to Hammer Street.
Fern Street—Girard Avenue to Prospect Avenue.
Ferry Street—Front Street to Connecticut Boulevard.
Fishfry Street—Windsor Avenue east.
Flatbush Avenue—Zion Street to (west) City Line.

Florence Street—Windsor Avenue to East Street.
Flower Street—Farmington Avenue to Capitol Avenue.
Foot Guard Place—High Street to Hoadley Place.
Ford Street—Asylum Street to Pearl Street.
Forest Street—Farmington Avenue to Boulevard.
Foster Street—City Line to Tobey Street.
Francis Avenue—Park Street to Francis Court.
Francis Court—New Park Avenue to Francis Avenue.
Franklin Avenue—Maple Avenue to City Line.
Franklin Place—Franklin Avenue West.
Freeman Street—Fairfield Avenue to Maple Avenue.
Front Street—Sheldon Street to Morgan Street.
Garden Street—Asylum Street to Charlotte Street.
George Street—Preston Street to City Line.
Giddings Street—(accepted to Dexter Street), New Britain Avenue to Park River.
Gillett Street—Farmington Avenue to Asylum Street.
Gilman Street—Winship Street to Maple Avenue.
Girard Avenue—Farmington Avenue to Asylum Street.
Glendale Avenue—Zion Street to Park River.
Gold Street—Main Street to Wells Street.
Goodman Place—Main Street to Orchard Street.
Goodrich Street—Franklin Avenue to George Street.
Goodwin Street—Windsor Avenue to R. R. tracks.
Governor Street—Wyllys Street to Sheldon Street.
Grace Street—New Park Avenue to Greenwood Street.
Granby Street—Westbourne Parkway to Tower Avenue.
Grand Street—Lafayette Street to Babcock Street.
Grand Avenue—Zion Street to City Line.
Grandview Terrace—Linnmoore Street to Roxbury Street.
Grant Street—New Britain Avenue to Stafford Street.
Gray Street—Sisson Avenue to Evergreen Avenue.
Green Avenue—Chandler Street to Newington Avenue.
Green Street—Mather Street to Albany Avenue.
Greenfield Street—Vine Street to Blue Hills Avenue.
Greenfield Street East—Vine Street to Bethel Street.
Greenwich Street—Tower Avenue to Rosemont Street.
Greenwood Street—Park Street South.
Griswold Street—Torwood Street South to Maple Avenue.
Grove Street—Main Street to the Connecticut River.
Guilford Street—Bethel Street to Brook Street.
Hadley Court—New Britain Avenue West.
Hamilton Street—Zion Street to New Park Avenue.
Hampton Street—Earle Street to Rosemont Street.
Hanmer Street (accepted to Fenwick Street)—George Street to Franklin Avenue.
Harbison Street—Zion Street to Park River.
Harold Street—Blue Hills Avenue to Lyme Street.
Harper Street—Love Lane to Keney Park.
Harrison Street—Albany Avenue to Harrison Place.
Harrison Place—Harrison Street to Woodland Street.
Hartland Street—Manchester Street to Burnham Street.
Harvard Street—White Street to Linnmoore Street.
Harwich Street—Roxbury Street to New Britain Avenue.
Hawthorn Street—Sigourney Street to Park River.
Haynes Street—Asylum Street to Pearl Street.
Hazel Street—Park Street to Boulevard.
Heath Street—Park Street to Capitol Avenue Extension.

Hebron Street—Blue Hills Avenue to Granby Street.
Hendricxsen Avenue—Sequassen Street to Wawarme Avenue.
Henry Street—Roxbury Street to New Britain Avenue.
Henry Street—Newington Avenue to Montrose Avenue.
Herman Street—Newington Avenue to Montrose Avenue.
Hicks Street—Trumbull Street to South Ann Street.
High Street—Asylum Street to Main Street.
Hillside Avenue—Linnmoore Street to Hamilton Street.
Hoadley Place—Huntley Place to Church Street.
Holcomb Street—Granby Street to Vine Street.
Homestead Avenue—Garden Street to Albany Avenue.
Hopkins Street—Asylum Street to Broad Street.
Howard Street—Flower Street to Broad Street.
Hudson Street—Buckingham Street to Jefferson Street.
Humphrey Street—Linnmoore Street to Oliver Street.
Hungerford Street—Park Street to Capitol Avenue.
Huntington Street—Asylum Street to Sargeant Street.
Huntley Avenue—Walnut Street to Huntley Place.
Huntley Place—Huntley Avenue East.
Hurlburt Street—Asylum Street South.
Huyshope Avenue—Wawarme Avenue to Charter Oak Avenue.
Imlay Street—Hawthorn Street to Farmington Avenue.
Irving Street—Homestead Avenue to Albany Avenue.
James Street—Capitol Avenue Extension to Ashton Street.
Jefferson Street—Main Street to Affleck Street.
Jewell Street—Trumbull Street to Ford Street.
John Street—Park Street to Buckingham Street.
Judson Street—Clark Street to Martin Street.
Julius Street—New Britain Avenue to Mountford Street.
Keeney Lane—Commerce Street to the Connecticut River.
Kelsey Street—White Street to Linnmoore Street.
Kennedy Street—Windsor Avenue to Donald Street.
Kenneth Street—Maple Avenue to Broad Street.
Kensington Street—Windsor Avenue to Hampton Street.
Kent Street—Homestead Avenue to Norfolk Street.
Kenyon Street—Farmington Avenue to Asylum Street.
Kenyon Court—Albany Avenue South.
Kibbe Street—New Park Avenue to Bulkeley Avenue.
Kilbourn Street—Front Street to Connecticut Boulevard.
Kilbourn Court—Front Street West.
King Street—Julius Street to Webster Street.
Kinsley Street—Main Street to Market Street.
Lafayette Street—Park Street to Capitol Avenue.
Laurel Street—Park Street to Niles Street.
Lawrence Street—Ward Street to Capitol Avenue.
Ledger Street—Bonner Street to Catherine Street.
Lenox Street—Albany Avenue to Greenfield Street.
Lewis Street—Pearl Street to Wells Street.
Liberty Street—Williams Street to Garden Street.
Lincoln Street—Washington Street to Affleck Street.
Linden Place—Main Street to Elm Place.
Linnmoore Street—Maple Avenue to Mountain Street.
Litchfield Street—Blue Hills Avenue to Hartland Street.
Loomis Street—Bellevue Street to R. R. Track.
Lorraine Street—Farmington Avenue to Sherman Street.
Love Lane—Westland Street to Vine Street.
Lumber Street—Albany Avenue South.
Lyme Street—Cornwall Street to Burnham Street.

McKinley Street—Roosevelt Street to South Street.
McLean Street—Roosevelt Street to South Street.
McMullen Street—Victoria Road to City Line.
Madison Street—Washington Street to Affleck Street.
Madison Avenue—Park Street to south of Kibbe Street.
Magnolia Street—Albany Avenue to Homestead Avenue.
Mahl Avenue—Windsor Avenue to Homestead Avenue.
Main Street—Jefferson Street to Windsor Avenue.
Manchester Street—Blue Hills Avenue to Granby Street.
Manetock Street—Terry Road to Albany Avenue.
Mannz Street—Wethersfield Avenue to Elliott Place.
Mansfield Street—Edgewood Street to Vine Street
Mansfield Street East—Vine Street to Enfield Street.
Maple Avenue—Retreat Avenue to City Line.
Market Street—State Street to Pleasant Street.
Marion Avenue—Newington Avenue to City Line.
Marsh Court—Village Street to Market Street.
Martin Street—Capen Street to Charlotte Street.
Marshall Street—Farmington Avenue to Niles Street.
Masseek Street—Hendricxsen Avenue to Van Dyke Avenue.
Mather Street—Windsor Avenue to Vine Street.
May Street—Collins Street to Sargeant Street.
Meadow Street—Wethersfield Avenue east.
Mechanic Street—Potter Street to Grove Street.
Melrose Street—Tower Avenue to Rosemont Street.
Merrill Street—Prospect Avenue to New Park Avenue.
Middlefield Street (accepted Raymond Street to Greenfield Street)—East Raymond Street South.
Midland Street—Sunset Street to Violet Street.
Milford Street—Albany Avenue to Homestead Avenue.
Monroe Street—Linnmoore Street to New Britain Avenue.
Montowese Street—Franklin Avenue to George Street.
Montrose Street—New Britain Avenue to Stafford Street.
Montville Street—Windsor Avenue to Hampton Street.
Morgan Street—Main Street to Connecticut Boulevard.
Morningside Street East—Blue Hills Avenue east to City Line.
Morningside Street West—Blue Hills Avenue to Canaan Street.
Morris Street—Wethersfield Avenue to Maple Avenue.
Mortson Street—Putnam Street to Park Street.
Mountain Street—New Britain Avenue to Linnmoore Street.
Mountford Street—Maple Avenue to Broad Street.
Mulberry Street—Main Street to Wells Street.
Myrtle Street—Spring Street to Garden Street.
Natalie Street—Rowe Avenue to Prospect Avenue.
Nelson Street—Clark Street to Martin Street.
Nepaquash Street—Vredendale Avenue to Van Block Avenue.
New Britain Avenue—Webster Street to City Line.
Newbury Street—New Britain Avenue to Roxbury Street.
Newfield Avenue—New Britain Avenue to Flatbush Avenue.
Newington Avenue—New Britain Avenue to City Line.
New Park Avenue—Park Street to City Line.
Newton Street—Park Street to Capitol Avenue Extension.
Niles Street—Sigourney Street to Woodland Street.
Norfolk Street—Blue Hills Avenue to Baltimore Street.
North Street—North Front Street to Windsor Street.
North Beacon Street—Farmington Avenue to Elizabeth Street.
North Front Street—North Street to R. R. track.
Oak Street—Park Street to Capitol Avenue.

Oakland Terrace—Homestead Avenue to Greenfield Street.
Olds Place—Wethersfield Avenue east
Olive Street—Bartholomew Avenue to Wellington Street.
Oliver Street—New Britain Avenue to Hillside Avenue.
Orange Street—Park Street to Boulevard.
Orchard Street—Windsor Street to Goodman Place.
Oriental Alley—Ann Street to High Street.
Otis Street—Franklin Avenue to Fairview Street.
Owen Street—Farmington Avenue South.
Oxford Street—Warrenton Avenue to Elizabeth Street.
Palm Street—Lyme Street to City Line.
Park Street—Main Street to Prospect Avenue.
Park Terrace—Capitol Avenue to Hillside Avenue.
Pavilion Street—Windsor Avenue to Bellevue Street.
Pawtucket Street—Franklin Avenue to Maple Avenue.
Pearl Street—Main Street to Ford Street.
Pequot Street—North Front Street to Village Street.
Phelps Court—Main Street to Windsor Street.
Plainfield Street—Ridgefield Street to Granby Street.
Pleasant Street—Main Street to R. R. track.
Pleasant Court—Pleasant Street South.
Pliny Street—Garden Street to Bethel Street.
Pliny's Court—Niles Street north.
Plymouth Street—Wethersfield Avenue to Franklin Avenue.
Pomfret Street—Palm Street to Lyme Street.
Portland Street—Pleasant Street to Avon Street.
Potter Street—Front Street to Dutch Point.
Pratt Street—Main Street to Trumbull Street.
Preston Street—Wethersfield Avenue to Fairfield Avenue.
Prospect Avenue—New Park Avenue to Albany Avenue.
Prospect Street—Arch Street to Central Row.
Putnam Street—Ward Street to Capitol Avenue.
Putnam Heights—Putnam Street to Park Terrace.
Queen Street—Broad Street to Beach Street.
Raymond Street—Vine Street to Edgewood Street.
Regent Street—West Hartford Boulevard to Warrenton Avenue.
Retreat Avenue—Maple Avenue to Washington Street.
Rice Court—Main Street south.
Ridgefield Street—Greenfield Street to Holcomb Street.
Risley Street—Barbour Street to Garden Street.
Riverside Street—Laurel Street to Woodbine Street.
Rodney Street—West Hartford Boulevard to Warrenton Avenue.
Roger Street—White Street to Linnmoore Street.
Roosevelt Street—Wethersfield Avenue to Fenwick Street.
Rose Street—Wellington Street to Bartholomew Avenue.
Rosemont Street—Windsor Avenue to Hampton Street.
Roslyn Avenue—New Britain Avenue to Stafford Street.
Rowe Avenue—Park Street to Capitol Avenue Extension.
Roxbury Street—Broad Street to Fairfield Avenue.
Russ Street—Lafayette Street to Park Terrace.
Russell Street—Windsor Avenue to Windsor Street.
Salem Street—Fairfield Avenue to Maple Avenue.
Salisbury Street—Manchester Street to Burnham Street.
Sanford Street—Windsor Avenue to R. R. track.
Sargeant Street—Garden Street to Woodland Street.
Scarborough Street—Asylum Street to Albany Avenue.
School Street—Washington Street to Broad Street.
Sequassen Street—Hendricxsen Avenue to Van Dyke Avenue.

Seymour Street—Park Street to Retreat Avenue.
Seyms Street—Windsor Avenue to Center Street.
Sharon Street—Blue Hills Avenue to Granby Street.
Sheldon Street—Main Street to Charter Oak Avenue.
Sherman Street—Farmington Avenue to Lorraine Street.
Shultas Place—Wethersfield Avenue to Maple Avenue.
Sigourney Street—Capitol Avenue to Albany Avenue.
Simpson Street—Hartland Street to Lyme Street.
Sisson Avenue—Farmington Avenue to Park Street.
South Street—Wethersfield Avenue to Maple Avenue.
South Ann Street—Pearl Street to Jewell Street.
South Hudson Street—Retreat Avenue to Jefferson Street.
South Marshall Street—Farmington Avenue to Case Street.
South Prospect Street—Charter Oak Avenue to Sheldon Street.
South Whitney Street—Farmington Avenue to Park Street.
South Woodbine Street—Riverside Street to Park River.
Spring Street—Asylum Street to Myrtle Street.
Squire Street—Ward Street to Park Street.
Spruce Street—Asylum Street to R. R. tracks.
Stafford Street—Newington Avenue to City Line.
Standish Street—Wethersfield Avenue to George Street
Standwood Street—Newington Avenue to City Line (accepted from Montrose Street to City Line.)
State Street—Main Street to Connecticut River.
Stedman Street—Barker Street to Adelaide Street.
Sterling Street—Albany Avenue to Homestead Street.
Suffield Street—Windsor Avenue to R. R. tracks.
Summit Street—New Britain Avenue to Park Terrace.
Sumner Street—Asylum Street to Collins Street.
Sunset Street—Windsor Avenue to Midland Avenue.
Talcott Street—Main Street to Connecticut Boulevard.
Taylor Street—Charter Oak Avenue to Sheldon Street.
Temple Street—Main Street to Front Street.
Terry Road—Asylum Street to Albany Avenue.
Thomaston Street—Ridgefield Street to Granby Street.
Tobey Street—Foster Street to Fairfield Avenue.
Torwood Street—Freeman Street to Salem Street.
Tower Avenue—Windsor Avenue to Westbrook Street.
Townley Street—Willard Street to Atwood Street.
Tredeau Street—Franklin Avenue to George Street.
Tremont Street—Warrenton Avenue to Cone Street.
Trinity Street—Capitol Avenue to Ford Street.
Trumbull Street—Main Street to Lewis Street.
Union Place—Asylum Street to Church Street.
Union Street—Wyllys Street to Sheldon Street.
Uphill Street—Ridgefield Street to Granby Street.
Van Block Avenue—Masseek Street to Charter Oak Avenue.
Van Dyke Avenue—Wawarme Avenue to Charter Oak Avenue.
Vernon Street—Washington Street to Summit Street.
Victoria Road—Wethersfield Avenue to George Street.
Village Street—Main Street to Avon Street.
Vine Street—Albany Avenue to Holcomb Street.
Vineland Terrace—Enfield Street to Vine Street
Violet Street—Windsor Avenue to Midland Street.
Vredendale Avenue—Charter Oak Avenue to Sequassen Street
Wadsworth Street—Park Street to Buckingham Street.
Walnut Street—High Street to Garden Street.
Ward Street—Washington Street to Park Terrace.

Ward Place—Zion Street to Hillside Avenue.
Warner Street—Franklin Avenue west.
Warren Street—Bellevue Street to Windsor Street.
Warrenton Avenue—Sisson Avenue to Prospect Avenue.
Washington Street—Capitol Avenue to New Britain Avenue.
Water Street—Morgan Street to North Street.
Waverly Avenue—Love Lane North.
Wawarme Avenue—Van Dyke Avenue to Wethersfield Avenue.
Webster Street—Maple Avenue to Washington Street.
Weehasset Street—Hendricxsen Avenue to Huyshope Avenue.
Wellington Street—Olive Street to Park River.
Wells Street—Main Street to Lewis Street.
West Street—Buckingham Street to Elm Street
Westbourne Parkway—Ridgefield Street to Albany Avenue.
Westbrook Street—Tower Avenue to Durham Street.
West Clay Street—Clay Street west.
West Hartford Boulevard—Sisson Avenue to Prospect Avenue (City Line.)
Westland Street—Windsor Avenue to Vine Street.
Westminster Street—Blue Hills Avenue to Granby Street.
Wethersfield Avenue—Wyllys Street to City Line.
White Street—Maple Avenue to New Britain Avenue.
Whitman Court—Buckingham Street to Capitol Avenue.
Whitmore Street—Franklin Avenue to Maple Avenue.
Whitney Street—Farmington Avenue to Asylum Street.
Wilbur Avenue—New Britain Avenue to Park River.
Willard Street—Asylum Street to Collins Street.
Williams Street—Walnut Street to Albany Avenue.
Willow Street—Laurel Street to Capitol Avenue.
Wilson Street—Zion Street to Park River.
Wilton Street—Zion Street to Ledger Street.
Winchester Street—Vine Street to Enfield Street.
Windsor Avenue—Main Street to City Line.
Windsor Street—Main Street to Windsor Avenue.
Winship Street—Preston Street to Brown Street.
Winter Street—Green Street to Brook Street.
Winthrop Street—Pleasant Street to R. R. tracks.
Wolcott Street—Ward Street to Park Street.
Woodbine Street—Riverside Street to Capitol Avenue.
Woodbridge Street—Charter Oak Avenue to Sheldon Street.
Woodland Street—Farmington Avenue to Greenfield Street.
Woodstock Street—Blue Hills Avenue to Coventry Street.
Wooster Street—Canton Street to Suffield Street
Wyllys Street—Main Street to Charter Oak Avenue.
York Street—Zion Street to Park Terrace.
Zion Street—Park Street to New Britain Avenue.

SEWER TABLE FOR YEAR ENDING MARCH 31, 1917.

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
						No.	Length						
Sewer System for District Uphill Street to the	*West of Blue Hills Avenue from City Line.*												
Section "A" Uphill Street	Granby St. to Lyme St.	Lawrence C. Fay	24 60	Tile Block	33.8 722.0	20	300	2	12,640.21	$15834.61	$33463.67		Not completed March 31, 1917. Data given for work to that date only.
Palm Street	Uphill St. to Colebrook St.	Lawrence C. Fay	48 36	Block Block	376.0 873.3								
Section "B" Cornwall Street	Manchester St. to Harold St.	D'Onfro Brothers	15 12 10	Tile Tile Tile	185.4 315.5 300.0	41	615	8	36,658.07				
Salisbury Street	Manchester St. to Tower Ave.	D'Onfro Brothers	10	Tile	340.0	8	120	1					
Salisbury Street	Litchfield St. to Burnham St.	D'Onfro Brothers	30 24	Block Tile	909.7 262.5	27	405	5					
Hartland Street	Manchester St. to Simpson St.	D'Onfro Brothers	12 10	Tile Tile	605.0 710.0	28	420	4					
Cornell Street	Burnham St. to Morningside St.	D'Onfro Brothers	18 15	Tile Tile	303.7 300.3	4	60	3					
Blue Hills Avenue	From 400 ft. north of Litchfield St. to City Line	D'Onfro Brothers	12 10	Tile Tile	676.4 855.1	43	889	6					
Manchester Street	Blue Hills Ave. to Hartland St.	D'Onfro Brothers	15 12 10	Tile Tile Tile	50.0 294.8 755.7	25	375	6					
Tower Avenue	Blue Hills Ave. to Hartland St.	D'Onfro Brothers	15 12 10	Tile Tile Tile	672.0 194.7 340.0	35	525	6					
Litchfield Street	Blue Hills Ave. to Hartland St.	D'Onfro Brothers	30 12 10	Block Tile Tile	395.0 240.0 420.0	8	45	5					
Harold Street	Blue Hills Ave. to Hartland St.	D'Onfro Brothers	12 10	Tile Tile	371.7 609.6	33	495	3					

SEWER TABLE FOR YEAR ENDING MARCH 31, 1917 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
						No.	Length						
rnham Street	Blue Hills Avenue to 200 feet west of Cornell Street	D'Onfro Brothers	18 15 12 10	Tile Tile Tile Tile	181.1 229.3 195.7 215.6	9	135	5	Cost included on Previous Page				
clid Street West	Blue Hills Ave. to Cornwell St.	D'Onfro Brothers	10	Tile	389.6	2	30	1					
orningside St., West	Blue Hills Ave. to 300 feet west of Cornell St.	D'Onfro Brothers	10	Tile	675.0	2	30	2					
wer Avenue	Windsor Ave. to 500 ft. east of Barbour Street	Ambrosio Contracting Co.	42 33 30 24 18 15 10	Block Block Block Tile Tile Tile Tile	592.2 320.0 335.2 32.1 393.0 349.8 925.4	108	1553	11	17,767.80		17,767.80		
ldison Street	Tower Ave. to Rosemont St.	Ambrosio Contracting Co.	18 12	Tile Tile	381.0 200.1	12	156	2					
semont Street	Between Windsor Avenue and Cambridge Street	Ambrosio Contracting Co.	12 10	Tile Tile	215.1 785.4	36	497.7	4					
elrose Street	Tower Ave. to Rosemont St.	Ambrosio Contracting Co.	10	Tile	370.2	10	139.6	1					
eenwich Street	Tower Ave. to Rosemont St.	Ambrosio Contracting Co.	10	Tile	370.5	10	141.9	1					
mbridge Street	Tower Ave. to Rosemont St.	Ambrosio Contracting Co.	15	Tile	361.5	10	278.1	1					
n Street	Allyn Street to 350 feet north of Chapel Street	F. A. Barone	24 20 12	Tile Tile Tile	248.0 491.2 395.0	39	333.5	4	5,433.65	$2,848.93	$2,584.72		Replaced existing sewer.
hford Street	Windsor Ave., westerly 680 ft.	Di Gregorio Brothers	10	Tile	684.0	22	290.0	4	1,298.95		$1,298.95		
lton Street	Franklin Ave. to Wethersfield Avenue	C. H. Slocomb & Co.	12 10	Tile Tile	711.4 360.9	36	540.0	4	2,285.52		$2,285.52		
lonial Court	Broad St., easterly 640 feet	J. Manocchio & P. Bonadies	10 8	Tile Tile	441.0 201.0			3	1,300.00			$1,300.00	Privately built under Drain Layers' Rules.

SEWER TABLE FOR YEAR ENDING MARCH 31, 1917 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
						No.	Length						
Earle Street	End of former sewer, westerly 438 feet	Louis Rogers	8 24	Tile Tile	438.1 960.8				$ 234.53			$234.53	Temporary — discontinued when following sewer was built; see also note above.
Earle Street	Windsor Ave. to Barbour St.	C. H. Slocomb & Co.	15 10	Tile Tile	529.2 332.0	60	790	6	5,681.05		$5,681.05		
Edgewood Street	Enfield St., easterly 92 feet	Louis Rogers	8	Tile	92.0	1	15		182.00			182.00	See note opp. Dorothy St.
Edgewood Street	End of above easterly 115 feet	Louis Rogers	8	Tile	114.8			1	309.67			309.67	
Glendale Avenue	Park River to Hillside Ave.	The W. T. Ryan Cons. Co.	10	Tile	527.3	22	275	4	960.80		960.80		
Granby Street	South of Cornwall Street	F. B. & W. H. O'Neil	39	Block	168.4	2	34	2	5,808.86		5,808.86		
Cornwall Street	Granby St. to Hebron St.	F. B. & W. H. O'Neil	39 38 30	Block Block Block	270.0 371.2 415.7	28	429	3					
Grandview Ter. Ext'n	White St., northerly 200 feet	John Manocchio	10	Tile	222.5	6	90	3	591.84			591.84	Built under Drain Layers' Rules.
Grove Street	Conn. River to Commerce St.	Louis Petrossi	24 20	Tile Cast iron	298.8 38.0			1	1,083.39	$1,083.39			Replaced former sewer.
Gully Brook Conduit	In Brook St. from Liberty St. to Albany Avenue	O'Neil Brothers	9' 6"x 8'-9"	Reinf'c'd Concrete	807.0			1	29,736.09	29,736.09			Not completed March 31, 1917. Data given for work to that date only.
Lewis Street	Gold St. to Pearl St.	W. T. Ryan	15 12	Tile Tile	37.5 373.0	21		3	1,833.20	916.60	916.60		Replaced former sewer.
Park Street	Broad St. to Zion St.	O'Neil Brothers	20 18 15	Tile Tile Tile	328.1 355.2 34.7	53	1223.8	4	5,412.70	3,579.11	1,833.59		Replaced former sewer. Begun prior to April 1, 1916. Data given for work since March 31, 1916, only.
Park Street	Hudson St. to Washington St.	W. T. Ryan	20 15	Tile Tile	496.0 499.2	37	366.0	4	7,028.78	5,362.31	1,666.47		In part replaced the former sewer.

SEWER TABLE FOR YEAR ENDING MARCH 31, 1916 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	House Connect's		Number Manholes	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
						No.	Length						
leasant Street	Windsor St. to Winthrop St.	F. A. Barone	15	Tile	401.0	36	309.8	2	$3,826.79	$1,918.40	$1,918.40		Replaced former sewers. Not completed March 31, 1917.
'inthrop Street	Pleasant St. to north of Ely St.	F. A. Barone	15	Tile	673.7	30	484.4	2					
outh Street	From South Meadows through Olds Place and South Street to Franklin Avenue	F. A. Barone	66" x 72½"	Concrete Block Arch					8,495.00	8,495.00			Storm water sewer. Not completed March 31, 1917. Only tunnel excavation and invert.
'ower Avenue	Hartland St. to Palm St.	N. C. Casciano & Co.	12	Tile	327.2	4	60	1	3,117.95		3,117.95		
alm Street	Tower Ave. to Simpson St.	N. C. Casciano & Co.	12	Tile	909.6	24	360	3					
'illage Street	Pleasant St., southerly 247 feet.	Louis Rogers	8	Tile	247.0				1,500.00			$1,500.00	Built under Drain Layers' Rules. Cost estimated.
'estbourne Parkway	Betw'n Granby Street and Blue Hills Avenue	C. H. Slocomb & Co.							162.57	152.60	9.97		Catch basin connections only. Part of extension of Homestead Ave. Interceptor. See 1915-1916 table.
rivate Lands	Blue Hills Ave. to Greenfield St.	John Manocchio	12 10 8	Tile Tile Tile	251.1 211.7 243.7			3	850.00			850.00	Cost estimated.
rivate Lands	From Farmington Av. northerly near Imlay, known as Jewell Ct.	Joe Tozzoli	12	Tile	409.5			2	1,142.96			1,142.96	Built under Drain Layers' Rules.
rivate Lands	Parallel to and west of Sisson Ave. Interceptor to Conduit	Street Department	15	Tile	63.0			1	185.48	185.48			Cost includes $68 for right of way.
rivate Lands	From Park River to New Britain Ave., opposite Roslyn St.	N. C. Casciano & Co.	36 30	Block Block	288.3 35.0			3	2,290.46	2,290.46			Storm water sewer. Cost includes $300 for right of way. Not completed March 31, 1917.
otals............	....	....	6.76 Miles		35704.8	383	[illegible]	145	$159,290.18	$72,397.98	$79,309.34	$7,582.86	

LIST OF SEWERS DISCONTINUED DURING YEAR ENDING MARCH 31, 1917

Street	Location	Size and Material	Length	Built	Remarks
Ann St.	Allyn St. to north of Chapel	18-inch Brick	1070 feet	1849	Replaced by deeper sewer
Ann St.	North of Chapel St.	7x10-inch Brick Box	64 feet	......	Replaced by deeper sewer
Earle St.	Windsor Ave. westerly 220 ft.	8-inch Tile	220 feet	1905	Replaced by larger sewer
Earle St.	From above sewer westerly 438 feet.	8-inch Tile	438 feet	1916	Temporary; replaced by larger sewer
Grove St.	Conn. River to Commerce St.	24-inch Brick	Ab't 330 ft.	1858	In need of repair; replaced by sewer in new location
Brook St.	Liberty St. northerly	10x10-in. Brick and Stone	300 feet	......	Replaced by conduit on lower grade
Brook St.	From above conduit northerly	36-inch Brick	95 feet	......	
Lewis St.	Gold St. northerly	18-inch Brick	350 feet	1853	Replaced by deeper sewer
Lewis St.	From above sewer northerly	6-inch Tile	60 feet	......	Replaced by deeper sewer
Park St.	Affleck St. to near Zion St.	18-inch Brick	600 feet	1862	Replaced by deeper sewer
Park St.	From above sewer to Zion St.	18-inch Brick	125 feet	1874	Replaced by deeper sewer
Park St.	Hudson St. to Seymour St.	24-inch Brick	520 feet	1859	Replaced by deeper sewer
Pleasant St.	Windsor St. to Winthrop St.	24-inch Brick	401 feet	1856	Replaced by deeper sewer
Winthrop St.	Pleasant St. northerly	8-in. Unglaz. Tile or Brick	400 feet	......	Replaced by deeper sewer
			4973 feet	= 0.94 miles	

Sewers built during year ending March 31, 1917,	35,705 feet	=	6.76	miles
Sewers discontinued during year ending March 31, 1917,	4,973 feet	=	0.94	miles
Net increase in sewers in use during year ending March 31, 1917,	30,732 feet	=	5.82	miles
Approximate length of sewers in use March 31, 1916,	....		141.25	miles
Approximate length of sewers in use March 31, 1917,	....		147.07	miles

SUMMARY BY MATERIALS AND SIZES OF SEWERS BUILT DURING YEAR ENDING MARCH 31, 1917

Material	Size	Length in Feet		Miles		Percentage of Length	
Tile	24-inch	1,836.0		0.35		5.15	
Tile	20-inch	1,315.3		0.25		3.68	
Tile	18-inch	1,614.0		0.31		4.52	
Tile	15-inch	4,386.6		0.83		12.25	
Tile	12-inch	6,950.9		1.31		19.49	
Tile	10-inch	11,348.4		2.15		31.80	
Tile	8-inch	1,336.6		0.25		3.74	
Tile	All		28,787.8		5.45		80.63
Block	60-inch	722.0		0.14		2.02	
Block	48-inch	376.0		0.07		1.05	
Block	42-inch	592.2		0.11		1.66	
Block	39-inch	438.4		0.08		1.23	
Block	36-inch	1,161.6		0.22		3.26	
Block	33-inch	691.2		0.13		1.94	
Block	30-inch	2,090.6		0.40		5.86	
Block	All		6,072.0		1.15		17.02
Reinforced Concrete	9 ft. 6 ins. x 8 ft. 9 ins.		807.0		0.15		2.26
Cast-iron	20-inch		38.0		0.01		0.09
			35,704.8		6.76		100.00

SUMMARY BY METHOD OF PAYMENT OF SEWERS BUILT DURING YEAR ENDING MARCH 31, 1917

	Length in Ft.	Miles	% L'gth	Cost	% Cost
New construction, cost divided between City and property,	13,998.5	2.65	39.2	$49,460.85	31.0
Reconstruction, cost divided between City and property,	4,332.6	0.82	12.1	23,535.12	14.8
Total,	18,331.1	3.47	51.3	72,995.97	45.8
Entire cost paid by City,	1,530.1	0.29	4.3	41,790.42	26.2
Entire cost assessed on properties,	12,199.2	2.31	34.2	36,920.93	23.2
Built and paid for by private parties	3,644.4	0.69	10.2	7,582.86	4.8
Total,	35,704.8	6.76	100.0	$159,290.18	100.0

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1917.

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	North side and tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Albany Avenue	East St. to Magnolia St.	Paved	Sheet Asphalt	D. T.	1.69	2.8845	Nov. 21, 1914	Nov. 21, 1919
Albany Avenue	Magnolia to Woodland St.	Paved	Sheet Asphalt	D. T.	1.58	2.6600	Jan. 22, 1917	Jan. 22, 1922
Allyn Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	Jun. 12, 1899	June 12, 1904
Amer. & Cent. Rows	East of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Amer. & Cent. Rows	East of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum St. to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street	Spruce St. to Farm'ton Av.	Tracks relaid	Granite Block	D. T.	.....	....	1911	....
Asylum Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford St. to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Asylum Street	Main St. to Spruce St.	Repaved	Sheet Asphalt	S. & D.	2.28	By City	Oct. 12, 1908	Oct. 12, 1918
Asylum Street	Spruce St. to Garden St.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Spruce St. to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Hopkins St. to Farm'ton Av	S. side resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Asylum Street	Garden St. west to Header	N. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Jun. 23, 1914	June 23, 1919
Atheneum Street	Prospect St. to Main St.	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Atheneum St., South	Main St. to Prospect St.	Paved	Sheet Asphalt	No	1.60	By City	Nov. 2, 1915	Nov. 2, 1920
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No	.....	....	1897	....
Broad Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Capitol Avenue	Lafayette St. to Park River	Paved	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 26, 1905
Capitol Avenue	Lafayette St. to Broad St.	N. side resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Lafayette St. to Broad St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Broad St. to Park River	Both sides resurf'd	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.	.....	....	1895	....
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	.65	By City	Dec. 6, 1911	No guarantee
Capitol Avenue	Park Ter. to Sigourney St.	Wid'd and repav'd	Sheet Asphalt	D. T.	1.66	By City	Jan. 22, 1917	Jan. 22, 1922
Central Row	Main St. to Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1917 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Central Row	Main St. to Post Office	Repaved	Sheet Asphalt	D. T.	$2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Church Street	Main St. to Trumbull St.	Paved	Sheet Asphalt	No	2.59	$2.1163	Nov. 8, 1897	Nov. 8, 1902
Church Street	Main St. to Trumbull St.	Resurfaced	Sheet Asphalt	No	1.67	By City	July 28, 1909	July 28, 1914
Church Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	1.58	1.8608	Jan. 22, 1917	Jan. 22, 1922
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Church Street	Union Pl. to Spruce St.	Resurfaced	Sheet Asphalt	No	1.39	By City	Sep. 29, 1913	Sep. 29, 1918
Church Street	Spruce St. westerly	Paved	Granite Block	No	3.63	4.1578	Oct. 15, 1913	Oct. 15, 1914
Connecticut Boulev'd	State St. to Ferry St.	Paved	Sheet Asphalt	D. T.	1.58	2.8939	Jan. 22, 1918	Jan. 22, 1922
Farmington Avenue	Asylum Av. to Woodland St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue	Asylum Av. to Sigourney St.	Full width resurf.	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Both sides resurf'd	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1909	....
Farmington Avenue	Woodland to Tremont St.	Paved	Sheet Asphalt	D. T.	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue	Tremont St. to Prospect Av.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ford Street	Pearl St. to Asylum St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Ford Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1918
Front Street	State St. to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Front Street	State St. to Morgan St.	Paved	Sheet Asphalt	No	2.15	2.8721	Dec. 5, 1913	Dec. 5, 1918
Gold Street	Main St. to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sep. 11, 1898	Sep. 11, 1903
Grove Street	Main St. to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect St. to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1898	....
Hamilton Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Haynes Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church St. to Main St.	Resurfaced	Sheet Asphalt	No	1.27	By City	May 19, 1911	May 19, 1916
High Street	Asylum St. to Church St.	Resurfaced	Sheet Asphalt	No	0.89	By City	June 23, 1914	June 23, 1919
Hopkins Street	Broad St. to Asylum St.	Paved	Sheet Asphalt	No	2.58	2.3865	June 12, 1899	June 12, 1904
Kinsley Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903
Laurel Street	Bridge over Park River	Paved	Brick	S. T.	......	....	1894	....
Laurel Street	Bridge over Park River	Repaved	Brick	S. T.	2.40	By City	July 11, 1900	....
Lewis Street	Pearl St. to Gold St.	Paved	Sheet Asphalt	No	2.51	1.808	Sep. 24, 1900	Sep. 24, 1905

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1917 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Main Street	Arch St. to Morgan St.	Paved	Sheet Asphalt	D. T.	$2.49	$5.4887	Dec. 14, 1896	Dec. 14, 1901
Main Street	Morgan St. to Windsor Ave.	Paved	Sheet Asphalt	D. T.	2.70	4.6395	Oct. 11, 1897	Oct. 11, 1902
Main Street	Wyllys St. to Arch St.	Paved	Sheet Asphalt	D. T.	2.66	4.5750	Oct. 25, 1897	Oct. 25, 1902
Main Street	West of tracks along east side of South Green	Resurfaced	Sheet Asphalt	D. T.	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Across S. end of So. Green	Resurfaced	Sheet Asphalt	No	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Wyllys to Charter Oak Ave.	E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Main Street	State St. north	Tracks repaved	Wood Block	D. T.	......	....	1903	....
Main Street	Eng. House 1 to Buck'gham	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1916	....
Main Street	Eng. House 1 to Wells St.	W. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Char. Oak Av. to Atheneum	E. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Buckingham St. to Atheneum, South	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1916	....
Main Street	Jefferson St. to Park St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Windsor St. to Windsor Av.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Jefferson St. to Park St.	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1912	....
Main Street	Wyllys to N. end South Gr'n	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1908	....
Main Street	Park St. to Eng. House No. 1	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Triangle N. end South Gr'n	Resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Atheneum St. to Cent. Row	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	State St. to Windsor St.	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Wells St. to Ann St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Ann St. to Lumber St North 200′ on Windsor Ave.	Whole St. resurf'd E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Maple Avenue	Congress St. to Morris St.	Paved	Sheet Asphalt	D. T.	1.58	2.6300	Jan. 22, 1917	Jan. 22, 1922
Market Street	State St. to Temple St.	Paved	Sheet Asphalt	S. T.	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1908
Market Street	Temple St. to Morgan St.	Paved	Sheet Asphalt	S. T.	2.56	2.3270	Oct. 9, 1899	Oct. 9, 1904
Market Street	Morgan St. to Pleasant St.	Paved	Sheet Asphalt	No	1.69	2.0173	Nov. 21, 1914	Nov. 21, 1919
Market Street	State St. to Morgan St.	W. side and tracks resurfaced	Sheet Asphalt	S. T.	1.65	By City	Aug. 4, 1904	Aug. 4, 1914
Market Street	Temple St. to Morgan St.	E. side resurfaced	Sheet Asphalt	S. T.	0.89	By City	June 23, 1914	June 23, 1919
Market Street	State St. to Morgan St.	Tracks resurfaced	Sheet Asphalt	S. T.	......	....	1914	....

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1917 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Marsh Court	Market St. to Village St.	Paved	Sheet Asphalt	No	$2.15	$1.1455	Dec. 5, 1913	Dec. 5, 1918
Morgan Street	Market St. to Main St.	Paved	Granite Block	S. T.	3.09	2.1525	Dec. 27, 1898	Aug. 27, 1899
Morgan Street	Intersection with Front St.	Paved	Granite Block	D. T.	......	By City	Dec. 5, 1913	No guarantee
Morgan Street	Front St. to Market St.	Paved	Sheet Asphalt	D. T.	2.15	3.1641	Dec. 5, 1913	Dec. 5, 1918
Mulberry Street	Main St. to Wells St.	Paved	Sheet Asphalt	No	2.55	2.6970	Nov. 14, 1898	Nov. 14, 1903
Park Street	Main St. to Zion St.	Paved	Sheet Asphalt	D. T.	1.58	1.6267	Jan. 22, 1917	Jan. 22, 1922
Park Street	Under Railroad Bridge	Paved	Granite Block	S. T.	3.35	By City	Nov. 27, 1899	July 27, 1900
Park Street	Under Railroad Bridge	Relaid	Granite Block	S. T.	1.35	By City	Oct. 4, 1910	No guarantee
Park Street	Under Railroad Bridge	Repaved	Granite Block	D. T.	......	By Railroad	1912	....
Park Street	Bridge over Park River	Paved	Sheet Asphalt	D. T.	......	....	1898	....
Park Street	Bridge over Park River	Relaid	Sheet Asphalt	D. T.	......	By Railroad	1912	....
Pearl Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	2.89	3.8380	July 22, 1895	July 22, 1900
Pearl Street	Main St. to Ford St.	Repaved	Sheet Asphalt	S. T.	2.70	By City	Sep. 10, 1903	Sep. 10, 1913
Pearl Street	Main St. to Ford St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Pleasant Street	Winthrop St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.3373	July 11, 1898	July 11, 1903
Pleasant Street	Windsor St. to Railroad	Paved	Sheet Asphalt	No	2.15	2.7830	Dec. 5, 1913	Dec. 5, 1918
Pratt Street	Main St. to Trumbull St.	Paved	Brick	No	......	By City	1892	....
Pratt Street	Main St. to Trumbull St.	Surfaced	Sheet Asphalt	No	1.68	1.4285	Aug. 14, 1899	Aug. 14, 1904
Prospect Street	Atheneum St. to Cent. Row	Paved	Sheet Asphalt	No	2.55	2.5256	July 25, 1898	July 25, 1908
Prospect Street	Grove St. to Central Row	Resurfaced	Sheet Asphalt	No	1.27	By City	Oct. 23, 1912	Oct. 23, 1917
Sheldon Street	Main St. to Union St.	Paved	Sheet Asphalt	No	2.20	2.5747	Oct. 4, 1911	Oct. 4, 1916
Sheldon Street	Union St. to Commerce St.	Paved	Sheet Asphalt	No	2.16	3.0100	Oct. 23, 1912	Oct. 23, 1917
Spruce Street	Asylum St. to Church St.	Paved	Sheet Asphalt	No	2.51	3.0163	Oct. 1, 1900	Oct. 1, 1905
Spruce Street	Church St. northerly	Paved	Granite Block	No	3.63	4.3221	Oct. 15, 1913	Oct. 15, 1914
State Street	Main St. to Commerce St.	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
State Street	City Hall to Main St.	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. westerly	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. to Conn.Boul'v'd	Repaved	Sheet Asphalt	D. T.	2.16	By City	Dec. 9, 1912	Dec. 9, 1917
State Street	Conn.Boulv'd to Commerce	Covered	Macadam	No	......	By City	1908	....
State Street	Front St. to City Hall	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Talcott Street	Market St. to Main St.	Paved	Granite Block	No	3.09	2.7184	Sep. 26, 1898	May 26, 1899
Talcott Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.75	2.7184	Sep. 26, 1898	Sep. 26, 1903

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1917 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Talcott Street	Front St. to Market St.	Paved	Sheet Asphalt	No	$1.69	$1.7221	Nov. 21, 1914	Nov. 21, 1919
Temple Street	Main St. to Market St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Temple Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	2.7883	Nov. 21, 1914	Nov. 21, 1919
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	E. side and tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1913
Trinity Street	Capitol Ave. to North end of Bridge	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27, 1898	June 27, 1903
Trumbull Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	No	1.55	By City	Dec. 30, 1915	Dec. 30, 1920
Trumbull Street	Church St. to Pratt St.	Resurfaced	Sheet Asphalt	No	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Pearl St. to Hicks St.	Paved	Granite Block	No	3.56	5.4946	Nov. 22, 1915	Nov. 22, 1916
Union Place	Asylum St. to Church St.	Paved	Granite Block	No	3.37	....	1894	....
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Village Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.55	1.3329	Dec. 30, 1915	Dec. 30, 1920
Wethersfield Avenue	Wyllys St. to Bond St.	Paved	Sheet Asphalt	D. T.	1.55	2.3724	Dec. 30, 1915	Dec. 30, 1920
Windsor Avenue	Main St. to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sep. 11, 1899	Sep. 11, 1904
Windsor Avenue	Albany Ave. to Mather St.	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	July 21, 1914	July 21, 1919
Windsor Avenue	Main St. to Canton St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1907	....
Windsor Avenue	Canton St. to Capen St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Windsor Street	Main St. to Park St.	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903
Windsor Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.69	2.5563	Nov. 21, 1914	Nov. 21, 1919

Note—Price given, except for resurfacing, is for completed pavement (asphalt and concrete, exclusive of excavation).

IMPROVED PAVEMENTS IN HARTFORD APRIL 1, 1917

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Albany Avenue	Windsor Ave. to East St.	D. T.	4520.00					0.21
Albany Avenue	East St. to Magnolia St.	D. T.	14050.70					0.44
Albany Avenue	Magnolia St. to Woodland St.	D. T.	16369.30					0.52
Allyn Street	Trumbull St. to Union Place	No	6041.00					0.29
Amer. & Cent. Rows	East of Post Office	D. T.		1885.00				0.03
Ann Street	Asylum St. to Allyn St.	No	1170.26					0.06
Asylum Street	Spruce St. to Farmington Av.	D. T.		4658.72				0.16
Asylum Street	Spruce St. to Farmington Av.	D. T.	1701.58					
Asylum Street	Main St. to Spruce St.	S. T. & D. T.	10351.20					0.48
Atheneum Street	Prospect St. to Main St.	No	558.33					0.07
Atheneum St. South	Main St. to Prospect St.	No	1387.00					0.07
Broad Street	Bridge over Park River	No	451.55					0.02
Capitol Avenue	Lafayette St. to Park Terrace	D. T.	15075.34					0.60
Capitol Avenue	Sigourney St. to Laurel St.	D. T.	4067.50					0.18
Capitol Avenue	Park Ter. to Sigourney St.	D. T.	758.60					0.03
Central Row	Main St. to Post Office	D. T.	2000.00					0.05
Church Street	Main St. to Trumbull St.	No	1399.24					0.11
Church Street	Trumbull St. to Union Place	No	4649.50					0.29
Church Street	Union Pl. to Spruce St.	No.	957.00					0.06
Church Street	Spruce St. westerly	No		238.17				0.01
Connecticut Boul'vd	State St. to Ferry St.	D. T.	2791.10					0.08
Farmington Avenue	Asylum to Prospect Aves.	D. T.	42630.44					1.60
Ford Street	Pearl St. to Asylum St.	D. T.	2658.90					0.10
Front Street	State St. to Sheldon St.	No	5191.46					0.30
Front Street	State St. to Morgan St.	No	4583.29					0.26
Gold Street	Main St. to Lewis St.	No	1458.00					0.08
Grove Street	Main St. to Front St.	No	2342.07					0.19
Hamilton Street	Bridge over Park River	No	369.00					0.02
Haynes Street	Pearl St. to Asylum St.	No			718.42			0.05

IMPROVED PAVEMENTS IN HARTFORD, APRIL 1, 1917 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
High Street	Asylum St. to Main St.	No	6341.00	....	....	....	....	0.42
Hopkins Street	Broad St. to Asylum St.	No	3135.80	....	....	....	....	0.21
Kinsley Street	Market St. to Main St.	No	1037.20	....	....	....	....	0.09
Laurel Street	Bridge over Park River	S. T.	....	....	....	411.00	....	0.02
Lewis Street	Pearl St. to Gold St.	No	1085.00	....	....	....	....	0.10
Main Street	Wyllys St. to Windsor Ave.	D. T.	56414.27	....	....	....	....	1.47
Main Street	State St. north	D. T.	....	....	....	....	500.00	0.06
Maple Avenue	Congress St. to Morris St.	D. T.	8725.10	....	....	....	....	0.24
Market Street	State St. to Morgan St.	S. T.	5255.28	....	....	....	....	0.25
Market Street	Morgan St. to Pleasant St.	No	2846.4	....	....	....	....	0.17
Marsh Court	Market St. to Village St.	No	552.95	....	....	....	....	0.08
Morgan Street	Market St. to Main St.	S. T.	....	1520.87	....	....	....	0.10
Morgan Street	Market St. to Front St.	S. T. & D. T.	2213.94	....	....	....	....	0.09
Morgan Street	Intersection of Front Street	D. T.	....	342.71	....	....	....	....
Mulberry Street	Main St. to Wells St.	No	1298.85	....	....	....	....	0.08
Park Street	Main St. to Zion St.	D. T.	19208.20	....	....	....	....	0.84
Park Street	Under Railroad Bridge	D. T.	....	560.00	....	....	....	0.03
Park Street	Bridge over Park River	D. T.	555.50	....	....	....	....	0.02
Pearl Street	Main St. to Ford St.	D. T.	8188.50	....	....	....	....	0.32
Pleasant Street	Winthrop St. to Main St.	No	1010.41	....	....	....	....	0.07
Pleasant Street	Winthrop St. to Railroad	No	2239.71	....	....	....	....	0.14
Pratt Street	Main St. to Trumbull St.	No	1438.00	....	....	....	....	0.11
Prospect Street	Atheneum St. to Central Row	No	1802.62	....	....	....	....	0.13
Sheldon Street	Main St. to Commerce St.	No	5640.26	....	....	....	....	0.35
Spruce Street	Asylum St. to Church St.	No	2286.00	....	....	....	....	0.12
Spruce Street	Church St. northerly	No	....	1527.82	....	....	....	0.09
State Street	City Hall to Main St.	D. T.	1395.00	....	....	....	....	0.04
State Street	Front St. to Conn. Boulevard	D. T.	2609.94	....	....	....	....	0.09
State Street	Front St. westerly	D. T.	343.10	....	....	....	....	....

IMPROVED PAVEMENTS IN HARTFORD, APRIL 1, 1917 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
State Street	Front St. to City Hall	D. T.	....	4501.81	....	....	....	0.15
Talcott Street	Market St. to Main St.	No	....	950.42	....	....	....	0.09
Talcott Street	Market St. to Main St.	No	340.20	....	....	....	....	....
Talcott Street	Market St. to Front St.	No	1279.1	....	....	....	....	0.09
Temple Street	Market St. to Main St.	No	1051.87	....	....	....	....	0.09
Temple Street	Market St. to Front St.	No	2032.8	....	....	....	....	0.10
Trinity Street	Capitol Ave. to Ford St.	S. T. & D. T.	6947.80	....	....	....	....	0.27
Trumbull Street	Asylum St. to Main St.	No	5341.77	....	....	....	....	0.25
Trumbull Street	Pearl St. to Asylum St.	No	1377.13	....	....	....	....	0.04
Trumbull Street	Pearl St. to Hicks St.	No	....	1096.40	....	....	....	0.05
Union Place	Asylum St. to Church St.	No	....	3267.00	....	....	....	0.12
Village Street	Pleasant St. to Avon St.	No	2024.30	....	....	....	....	0.18
Village Street	Windsor St. to Pleasant St.	No	1927.30	....	....	....	....	0.11
Wethersfield Avenue	Wyllys St. to Bond St.	D. T.	25044.00	....	....	....	....	0.76
Windsor Avenue	Main St. to Capen St.	D. T.	19786.20	....	....	....	....	0.75
Windsor Street	Main St. to the Park.	No	....	2018.10	....	....	....	0.06
Windsor Street	The Park to Pleasant St.	No	2318.12	....	....	....	....	0.11
Windsor Street	Pleasant St. to Avon St.	No	3680.20	....	....	....	....	0.18
Totals........	....	....	358338.98	22567.02	718.42	411.0	500.00	15.49

Total Yardage all Pavements—382535.42 square yards.
Total Length—Asphalt 14.47 miles; Granite Block 0.89 miles; Wood Block 0.06 miles; Asphalt Block 0.05 miles; Brick 0.02 miles.
Total Length all Pavements—15.49 miles.

TABLE SHOWING THE NUMBER OF SQUARE YARDS LAID YEARLY AND THE MILEAGE ACTUALLY COVERED OF THE DIFFERENT KINDS OF IMPROVED PAVEMENT LAID IN HARTFORD SINCE 1892.

THIS TABLE INCLUDES ONLY NEW PAVEMENT LAID—NO REPAIR WORK.

Year Laid	*Brick*		*Block Asphalt*		*Granite Block*		*Wood Block*		*Sheet Asphalt*		*Total Yardage Laid Each Year*	*Total Miles*
	Yardage	*Miles*	*Yardage*	*Miles*	*Yardage*	*Miles*	*Yardage*	*Miles*	*Yardage*	*Miles*		
1892	1427.55	0.11									1427.55	0.11
1894	411.00	0.02			3267.00	0.12					3678.00	0.14
1895	442.60	0.03	7755.50	0.32							8198.10	0.35
1896			12063.32	0.38					21466.71	0.63	33530.03	1.01
1897			6694.04	0.36					45074.48	1.51	51768.52	1.87
1898			8925.19	0.32	9148.10	0.40			21974.39	1.11	40047.68	1.83
1899					560.00	0.03			63784.40	3.10	64344.40	3.13
1900									23923.34	1.06	23923.34	1.06
1903							600.00	0.06	8188.50	0.32	8788.50	0.38
1908					1756.94	0.07			13010.10	0.58	14767.04	0.65
1909					4629.87	0.12			7805.60	0.28	12435.47	0.40
1910									14487.97	0.50	14487.97	0.50
1911							442.60	0.03	10963.41	0.50	11406.01	0.53
1912									10583.97	0.58	10583.97	0.58
1913					2108.70	0.10			9589.89	0.57	11698.59	0.67
1914									23889.20	0.98	23889.20	0.98
1915					1096.40	0.05			29873.30	1.05	30969.70	1.10
1916									52501.80	2.00	52501.80	2.00
Totals	2281.15	0.16	35438.05	1.38	22567.01	0.89	1042.60	0.09	357117.06	14.77	418445.87	17.29

Note—The original paving on several streets has been removed and replaced by other pavements, and since this table contains both the original and the present pavement, the totals given here exceed the total yardage and miles in use at the present time as shown in another table.

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID.

Street	*Location*	*Asphalt Used*	*Year Laid*
Albany Avenue	South side, Lumber St. to East St.	Trinidad	1900
Albany Avenue	North side and tracks, Lumber St. to East St.	California (Atlas)	1909
Albany Avenue	Both sides and tracks, East St. to 50 feet East of Magnolia St.	Aztec (Mexican)	1914
Albany Avenue	Magnolia St. to Woodland St.	Aztec	1916
Allyn Street	Trumbull St. to Union Pl.	Trinidad	1899
Ann Street	Asylum St. to Allyn St.	Trinidad	1898
Asylum Street	Main St. to Spruce St.	Bermudez	1908
Asylum Street	Strips on both sides, Spruce St. to Garden and Hopkins Sts.	Bermudez and California (Atlas)	1912
Asylum Street	Strip on north side, Garden St. westerly to header at macadam	Aztec (Mexican)	1914
Asylum Street	South side, Hopkins St. to Farmington Ave.	Bermudez and 5% California	1913
Atheneum Street	Prospect St. to Main St.	Trinidad	1896
Atheneum St. South	Main St. to Prospect St.	Aztec	1915
Broad Street	Bridge over Park River	Bermudez and 5% California	1914
Capitol Avenue	Both sides, Park River Bridge to Laurel St	Bermudez	1909
Capitol Avenue	North side, Hungerford St. to Lafayette St.	Bermudez	1910
Capitol Avenue	South side and south track, Broad St. to Lafayette St.	Bermudez	1911
Capitol Avenue	North track and dummy, 150 east of Oak St. to Lafayette St.	Bermudez	1911
Capitol Avenue	Both sides, Broad St. to Park River Bridge	Bermudez	1911
Capitol Avenue	Tracks, Park River Bridge to Laurel St.	California (Atlas)	1909
Capitol Avenue	North side, Hungerford St. to Broad St.	California (Atlas)	1910
Capitol Avenue	Park Terrace to Sigourney St.	Aztec	1916-1917
Capitol Avenue	Intersection at Lafayette St.	California (Atlas)	1911
Central Row	Main St. to Granite Block	Bermudez (small area California)	1909
Church Street	Main St. to Trumbull St.	California (Atlas)	1909
Church Street	Union Pl. to Spruce St.	Bermudez and 5% California	1913
Church Street	Intersection at Spruce St.	Trinidad and Bermudez, 50 and 50%	1913
Church Street	Trumbull St. to Union Place	Aztec	1916
Connecticut Boule'd	State St. to Ferry St.	Aztec	1916
Farmington Avenue	South track and dummy, Sigourney St. to Woodland St.	Bermudez	1909
Farmington Avenue	Woodland St. to 100 feet east of Tremont St.	Bermudez	1910
Farmington Avenue	South side, south track and dummy, from 110 feet east of Tremont St. to 120 feet west of Beacon St.	Bermudez and Trinidad	1911
Farmington Avenue	North side and north track, from 110 feet east of Tremont St. to 140 feet west of Beacon St.	California and Bermudez	1911
Farmington Avenue	From 120 feet west of North Beacon St. and from 140 feet west of North Beacon St. to City Line, both sides	California (Atlas)	1911

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Farmington Avenue	North track, Sigourney St. to Woodland St.	California (Atlas)	1909
Farmington Avenue	North and south sides, from Asylum to Woodland Sts.	Bermudez and 5% California (Atlas)	1913
Farmington Avenue	North and south tracks and dummy, from Sigourney St. to Asylum St.	Bermudez and 5% California (Atlas)	1913
Ford Street	Asylum St. to Bridge over Park River	Bermudez	1908
Front Street	Potter St. to Sheldon St.	Bermudez and California	1912
Front Street	Potter St. to State St.	California (Acme)	1912
Front Street	Morgan St. to State St.	Bermudez and 5% California (Atlas)	1913
Front Street	Intersection at Talcott St.	Trinidad and Bermudez, 50 and 50%	1913
Gold Street	Main St. to Lewis St.	Trinidad	1898
Grove Street	Front St. to Prospect St.	California (Acme)	1912
Grove Street	Prospect St. to Main St.	Trinidad	1898
Hamilton Street	Bridge over Park River	Bermudez and 5% California	1914
High Street	Church St. to Main St.	Bermudez	1911
High Street	Asylum St. to south side of Allyn St., north side of Allyn St. to south side of Church Street	Bermudez and 5% California	1914
Hopkins Street	Broad St. to Asylum St.	Trinidad	1899
Kinsley Street	Market St. to Main St.	Trinidad	1898
Lewis Street	Pearl St. to Gold St.	Trinidad	1900
Main Street	East side, Wyllys St. to 100 feet south of Charter Oak Ave.	Aztec (Mexican)	1914
Main Street	East side, from 140 feet north of, to 100 feet south of Charter Oak Ave.	Bermudez	1910
Main Street	East side from Sheldon St. to 140 feet north of Charter Oak Ave.	California (Obispo)	1910
Main Street	Width of tracks along east side of South Green	Aztec	1916
Main Street	Across south end of South Green	Aztec	1916
Main Street	Sheldon St. Intersection	Bermudez	1910
Main Street	East side, from 80 feet north of Arch St. to Sheldon St.	California (Obispo)	1910
Main Street	Engine House No. 1 to Buckingham St., tracks	Aztec	1916
Main Street	East side, Atheneum St. to 80 feet north of Arch St.	Bermudez	1910
Main Street	East side, Atheneum St. to 70 feet north of Grove St.	Bermudez and California (Atlas)	1912
Main Street	East side, Central Row to 70 feet north of Grove St.	Bermudez	1912
Main Street	Buckingham St. to Atheneum St., south, tracks resurfaced	Aztec	1916
Main Street	East side, Central Row to State St.	Trinidad	1896
Main Street	East side, from State St. to 100 feet north of Temple St.	Bermudez	1912
Main Street	East side, from 100 feet north of Temple St. to 50 feet north of Talcott St.	Bermudez and California (Atlas)	1912
Main Street	East side, Windsor St. to 50 feet north of Talcott St.	Bermudez	1912
Main Street	North side, Windsor St. to 120 feet east of Pleasant St.	California (Atlas)	1911
Main Street	North side, Windsor Ave. to 120 feet east of Pleasant St.	Bermudez	1911

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Main Street	West side, from Jefferson St. 80 feet north, and tracks 190 feet north	Bermudez	1912
Main Street	West side, Park St. to 80 feet north of Jefferson St.	Bermudez and Trinidad	1911
Main Street	West side, Park St. to Engine House No. 1	California (Atlas)	1912
Main Street	West side, Wells St. to Engine House No. 1	Bermudez	1910
Main Street	West side, Wells St. 180 feet south of Mulberry St.	Bermudez and California (Atlas)	1912
Main Street	West side, from 270 feet south of Grove St. to 180 feet south of Mulberry	California (Acme)	1912
Main Street	West side, Grove St. 270 feet south	Bermudez	1912
Main Street	West side, Grove St. to Asylum St.	Bermudez and California (Acme)	1912
Main Street	West side, Asylum St. to 110 feet north of Church St.	Bermudez and California	1912
Main Street	South-west side, from 540 feet east of Ann St. to 110 feet north of Church	California (Atlas)	1912
Main Street	South side, from Ann St. 540 feet easterly	Bermudez and California (Atlas)	1912
Main Street	Triangle between tracks at Tunnel, including tracks and south side from east side of Ann St. west to Lumber St.	Aztec (Mexican)	1914
Main Street	Triangle between tracks at South Green	Bermudez and California (Atlas)	1912
Main Street	Tracks, Wyllys St. to north end of South Green	Bermudez	1908
Main Street	Tracks, Central Row to State St. and Pearl St. Intersection	Bermudez	1909
Main Street	Track work at Main St., State St. and Asylum St. Intersection	California (Atlas)	1909
Main Street	Tracks at Park St. to 190 feet north of Jefferson St.	California (Atlas)	1912
Main Street	West side, Wyllys St. to Park St. (East Section)	Trinidad	1897
Maple Avenue	Congress St. to Morris St.	Aztec	1916
Market Street	West side, Morgan St. to State St.	California (Atlas)	1909
Market Street	Track, State St. to Morgan St.	Bermudez and 5% California	1914
Market Street	Morgan St. to Pleasant St.	Aztec (Mexican)	1914
Market Street	East side, State St. to Temple St.	Trinidad	1898
Market Street	East side, Temple St. to Morgan St.	Bermudez and 5% California	1914
Marsh Court	Village St. to Market St.	Bermudez and 5% California	1913
Morgan Street	Both sides and tracks, Market St. to Front St.	Bermudez and 5% California	1913
Mulberry Street	Main St to Wells St.	Trinidad	1898
Park Street	Main St. to Zion St.	Aztec	1916–1917
Park Street	Bridge over Park River	Bermudez	1912
Pearl Street	Tracks from Main St. to 150 feet west	Bermudez	1909
Pearl Street	Tracks, from 150 feet west of Main St. to Ford St.	Bermudez	1910
Pearl Street	Both sides, Main St. to Ford St.	Trinidad	1903
Pleasant Street	Winthrop St. to Main St.	Trinidad	1903
Pleasant Street	Windsor St. to Market St.	Trinidad	1913
Pleasant Street	Market St. to Railroad	Trinidad and Bermudez, 50 and 50%	1913

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Pratt Street	Main St. to Trumbull St.	Trinidad	1899
Prospect Street	Central Row to Grove St.	California (Acme)	1912
Prospect Street	Grove St. to Atheneum St.	Trinidad	1898
Sheldon Street	Union St. to Taylor St.	California (Acme)	1912
Sheldon Street	Main St. to 77 feet west of Union St.	California (Atlas)	1911
Sheldon Street	Main St. from 77 west of Union St. to Union St.	Texaco	1911
Spruce Street	Asylum St. to Church St.	Trinidad	1900
State Street	Gutters, both sides, from Market St. to Front St.	Bermudez	1901
State Street	South side and track, from end of granite block west of Front St. to Connecticut Boulevard	Bermudez	1912
State Street	North side, track and dummy, from 220 feet east of granite block to Connecticut Boulevard	Bermudez and California (Acme)	1912
State Street	North side, track and dummy, from granite block 220 feet easterly	California (Acme)	1912
State Street	North side, granite block to Main St.	California (Atlas)	1909
Talcott Street	Gutters on both sides, Market St. to Main St.	Trinidad	1898
Talcott Street	Front St. to Market St.	Aztec (Mexican)	1914
Temple Street	Market St. to Main St.	Trinidad	1898
Temple Street	Front St. to Market St.	Bermudez and 5% California	1914
Trinity Street	East side and tracks, Capitol Ave. to Bridge	Bermudez	1908
Trinity Street	West side, Capitol Ave. to Ford St.	Aztec (Mexican)	1914
Trumbull Street	Asylum St. to Pearl St.	Texaco	1915
Trumbull Street	Asylum St. to Pratt St. and Church St. to Main St.	Trinidad	1898
Trumbull Street	Church St. to Pratt St.	Bermudez and 5% California	1914
Village Street	Windsor St. north	Trinidad	1898
Village Street	City Park to Pleasant St.	Trinidad	1899
Village Street	Pleasant St. to North St.	Aztec	1915
Village Street	North St. to Avon St.	Texaco	1915
Wethersfield Ave.	Wyllys St. to Bond St.	Aztec	1915
Windsor Avenue	Tracks, Albany Ave. to Canton St.	Bermudez	1907
Windsor Avenue	Tracks, Canton St. to Capen St.	California (Atlas)	1910
Windsor Avenue	East side, Main St. to Capen St., also west side, Mather St. to Capen St.	Trinidad	1899
Windsor Avenue	West side, Main St. to Mather St.	Aztec (Mexican)	1914
Windsor Street	City Park to Pleasant St.	Trinidad	1898
Windsor Street	Pleasant St. to Avon St.	Aztec (Mexican)	1914

TABLE SHOWING COST PER YARD FOR REPAIRS TO SHEET ASPHALT PAVEMENT ON TYPICAL STREETS OR SECTIONS OF STREETS FOR EACH YEAR AFTER THE EXPIRATION OF GUARANTEE TO APRIL 1, 1917.

Street	*Section*	*Yards City Only*	*Com-pleted*	*Years Guaranteed*	*Sixth Year*	*Seventh Year*	*Eighth Year*	*Ninth Year*	*Tenth Year*	*Eleventh Year*	*Twelfth Year*	*Thirteenth Year*	*Fourteenth Year*	*Fifteenth Year*	*Sixteenth Year*	*Seventeenth Year*	*Eighteenth Year*
					$	$	$	$	$	$	$	$	$	$	$	$	$
Allyn Street....	Trumbull St. to Union Place...	6041	1899	5	.003	.02	.02	.03	.07	.02	.06	.008	.04	.04	.043	.026	....
Ann Street.....	Asylum St. to Allyn St........	1170	1898	5	....	....	....	....	.006	....	.005	....	.01	.01	.01	....	....
Capitol Avenue.	Park River to Laurel St.......	2059	1909	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Church Street...	Main St. to Trumbull St.......	1399	1909	5	.008	....	....	....	....	....	....	....	....	....	....	....	....
Farmington Ave.	Woodland St. to Tremont St...	8741	1910	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Street.....	Main St. to Lewis St..........	1458	1898	5	....	....	....	....	....	....	....	.02	.02	....	.01	.006	.005
Grove Street....	Main St. to Prospect St.......	913	1898	5	....	....	....	....	.04	.06	.06	.03	.12	.14	.07	.049	.078
Hopkins Street..	Broad St. to Asylum St........	3136	1899	5	....	.07	.09	.24	.12	.22	.17	.13	.07	.11	.067	.068	....
Kinsley Street..	Main St. to Market St.........	1037	1898	5	....	....	....	....	....	.09	....	.01	....	....	.01	.005	.003
Lewis Street....	Pearl St. to Gold St..........	1085	1900	5	....	....	....	....	....	.01	.02	....	.01	.009	....	....	....
Mulberry Street.	Main St. to Wells St..........	1299	1898	5	....	.02	....	.02	.04	.01	....	02	.03	.05	.07	.004	.015
Pearl Street.....	Main St. to Ford St...........	4581	1903	10	....	....	....	....	....	.03	.011	.092	....	....	....	....	....
Pleasant Street..	Main St. to Winthrop St.......	1010	1898	5	.01	....	....	....	....	....	.05	.01	....	....	.01	.016	.013
Pratt Street....	Main St. to Trumbull St.......	1438	1899	5	.01	.003	.01	.06	.05	.04	.03	.05	.13	.05	.046	.064	....
Spruce Street...	Asylum St. to Church St.......	2286	1900	5	....	....	....	.002	.002	.01	.02	.05	.05	.051	.013	....	....
Temple Street...	Main St. to Market St.........	1052	1898	5	.003	.006	....	....	....	....	.01	....	....	.03	.001	.003	.01
Trinity Street...	E. side, Pearl St. to Capitol Ave.	2000	1908	5	....	....	.019	....	....	....	....	....	....	....	....	....	....
Village Street...	City Park to Pleasant St......	1927	1899	5	....	....	....	....	....	....	.005	.03	.02	.01	.016	.039	....

m Box
TE
25

ELEVENTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1913

ELEVENTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

OF THE

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1918

THE BOND PRESS, INC.,
HARTFORD, CONN.

HARVARD UNIVERSITY
The Library of the Schools
of Landscape Architecture and City Planning

ORGANIZATION

ROSCOE N. CLARK, City Engineer.
ROBERT J. ROSS, Assistant City Engineer.
WILLARD S. BREWER, Division Engineer.
HERBERT G. CLARK, Division Engineer.
FRANK G. FLOOD, Chemist.
H. IRVING SKILTON, Division Engineer.
F. PERRY CLOSE, Division Engineer.
JOHN P. MURPHY, Assistant Engineer
***JOHN W. KNOX**, Assistant Engineer.
ALDEN WELLS, Assistant Engineer.
***GEORGE S. FRANCIS**, Assistant Engineer.
CHARLES W. COOKE, Assistant Engineer.
EDWARD L. DONAGHUE, Inspector.
***PAUL P. KIMBALL**, Inspector.
JUDSON B. ROOT, Inspector.
RAYMOND W. SMITH, Inspector.
MERLE B. MANN, Inspector.
***FLORENCE L. CHAPIN**, Clerk.

*ROBERT E. CROSS,
PAUL V. HASSELBROCK,
*CLEMENT M. BRODERICK,
THOMAS M. BELDEN,
*PETER K. RASK,
WILLIAM H. BRAINARD,
GEORGE ANGELO,
AARON FIEN,
*RUSSELL C. STRUBELL,
THOMAS ROWLAND,
DANIEL R. MUIRHEAD,
WILLIAM H. DAVIS.

* Now in the National Service.

REPORT.

Hartford, Conn., 1918.

To his Honor the Mayor, and to the Honorable Court of Common Council of the City of Hartford, Connecticut.

Gentlemen:

I have the honor to submit the following report of the work of the Department of Engineering for the year ending March 31, 1918.

The work of the Department is assigned to various divisions according to its character and classification, and will be so considered herein.

SEWER DIVISION.

Tables appended to this report give a list of all sewers laid during the past year, together with data concerning their construction and cost.

SEWERS WEST OF BLUE HILLS AVENUE.

This year has seen the completion of the sewer system west of Blue Hills Avenue, which includes sewers in all streets between this avenue and Palm Street, from the City Line southerly to Manchester Street and a trunk sewer from Manchester Street southwesterly to the northerly end of the intercepting sewer at Uphill and Granby Streets. Since the trunk sewer was completed local sewers connecting with it have been built in Holcomb Street, Colebrook Street, Branford Street and a portion of Cornwall

Street. For a number of years the development of this section of the city has been retarded by a lack of sewer facilities, but during the past year has received considerable impetus in building construction and it should continue to expand at a rapid rate.

FRANKLIN AVE. RELIEF SEWER THROUGH SOUTH ST.

The 6-foot diameter sewer in South Street, designed to carry the excess storm water from Franklin Avenue to the meadow ditch east of Wethersfield Avenue, was built and connected to the 6-foot sewer in Franklin Avenue and to the 66-inch outlet of the Maple Avenue system. Cellar flooding in the lower part of Franklin Avenue should now be entirely eliminated, as should also the street surface flooding which had become a rather common occurrence below South Street during the last few years.

RELIEF SEWER AT WEST END OF NEW BRITAIN AVE.

There was also completed during the year an overflow from the sewer in New Britain Avenue to the Park River opposite Roslyn Street several hundred feet east of the City Line. This has been badly needed for some time, and will take all the storm water from the large tract of land south of New Britain Avenue and west of Newington Avenue.

WINDSOR AVENUE RELIEF SEWER.

The brook crossing Windsor Avenue just south of Fishfry Street has been closed in by a concrete conduit from the west line of the railroad right-of-way westerly to Windsor Avenue, and thence northerly in the latter street to Tower Avenue, with overflows at this point to the sewers in Tower Avenue and Windsor Avenue.

PROGRESS ON GULLY BROOK CONDUIT.

The section of Gully Brook Conduit from Liberty Street to Garden, contract for which was awarded in June, 1916, has been built to Pliny Street and should be completed to

SOUTH STREET STORM WATER CONDUIT

TUNNEL EXCAVATION FOR SOUTH STREET STORM WATER CONDUIT

Garden Street by the middle of the summer. At its crossing with Albany Avenue an opening 2 ft. 6 inches by 8.ft. 6 inches has been left in the north roadway for the disposal of snow, and it is proposed to place a smaller one in Garden Street. The layout for this conduit calls for its extension to a point several hundred feet north of Vineland Terrace and plans for this have been completed. However, owing to the scarcity and high cost of labor and materials, it was felt that this work should be postponed, with the exception of the crossing at Edgewood Street. The 24-inch culvert put in at this street by the promoters when the embankment was made had become so nearly filled up that every hard rain resulted in the ponding of water on the upstream side of the street. A section of conduit 7 feet in diameter and about 100 feet long has been built through the embankment. An opening 2 ft. 6 inches by 4 ft. 3 inches has been left in the arch for disposal of snow.

SEWER WORK IN 1918.

Sewer construction for the coming year, besides the completion of the work before mentioned, will, owing to war conditions, be very light. Local sewers will be built in Hillside Avenue, north of Flatbush Avenue; Mountford Street, west from Broad Street; Garden Street, north of Westland Street; Flatbush Avenue from the Park River to Newfield Avenue; and the North Beacon Street sewer will be rebuilt from Farmington Avenue to Cone Street.

CULVERTS.

A reinforced concrete box culvert was constructed in Linnmoore Street near Hillside Avenue at the crossing of Cemetery Brook, at a cost of $1,602.30.

BRIDGES.

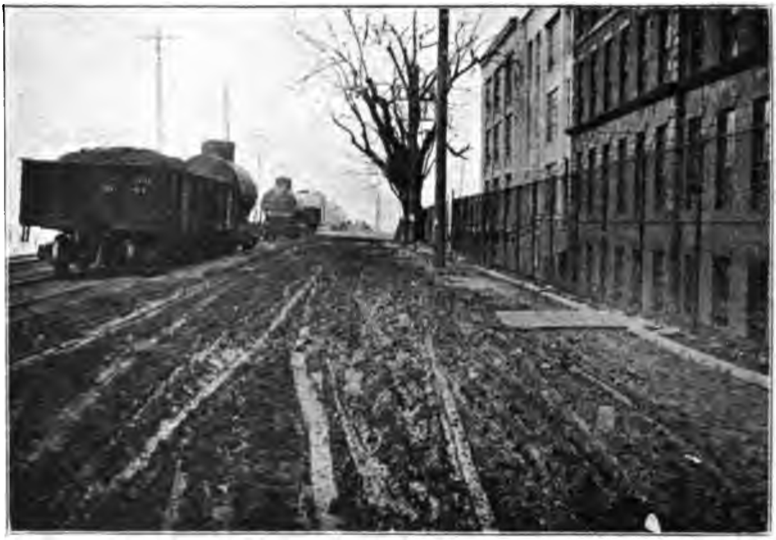
PROSPECT STREET BRIDGE.

On August 7 bids were received for the construction of a concrete bridge over the Park River at Prospect Street

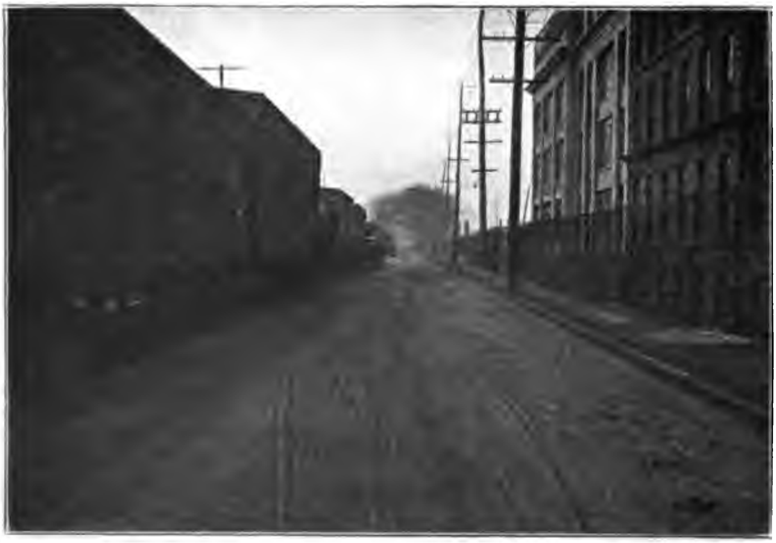
Extension, this being the major part of the work of connecting Arch Street and Sheldon Street at this point. The work consists of three 20-foot reinforced concrete beam-and-slab spans with plain concrete piers, abutments and retaining walls. On August 14 the contract was awarded to Fred D. Miller of Norwich, the low bidder, and he began work the following week. Through the coöperation of the Nonotuck Silk Company, which firm controlled the water rights in connection with the dam several hundred feet below the bridge, the water level was lowered about two and one-half feet, which greatly simplified the work of placing the foundations. When work was suspended in December on account of cold weather the two piers, the north abutment, the retaining walls on the northerly approach and the floor system for the northerly two spans had been completed and the lower portion of the south abutment had been placed. Work was resumed March 18 of this year and midsummer should see the bridge completed. There is a roadway 40 feet in width and two 7-foot sidewalks. A concrete parapet railing will extend throughout the bridge and retaining walls. On the north side of the river an 18-inch opening was left in the abutment and a line of 18-inch tile laid to serve for an outlet to an overflow from the Prospect Street sewer, if needed at any future time. There will also be built a 30-inch overflow from the south abutment to Sheldon Street to care for the storm water sewer in South Prospect Street.

HUDSON STREET BRIDGE.

The extension of Hudson Street across the Park River at the site of the old Daniels' Dam called for a new bridge here, and plans were completed in September for an arch bridge 60 feet wide over all and having a roadway 40 feet in width. There will be two arches of 44 feet span and 8 feet rise, these and the rest of the structure to be built of concrete, except for the facing and parapet railing, which will be of Portland brownstone. The filling over the arches will be of cinder concrete, and there will be an



VAN DYKE AVENUE
Before Paving



VAN DYKE AVENUE
Showing New Sheet Asphalt Pavement

asphalt roadway with cement sidewalks. Bids for its construction were received on September 18 and on the 20th the contract was awarded to Charles H. Slocomb of this city.

Actual construction was begun early in October and the south abutment and pier completed and the foundation of the north abutment placed before winter forced a suspension of operations. However, the work of cutting the brownstone at the stoneyard was continued during the winter and practically all of this work is now ready for delivery. Construction work was resumed about April 1 and the work should be completed by early fall.

On both the Hudson and the Prospect Street bridges provision has been made for the disposal of snow in a similar manner to that employed on the Capitol Avenue bridge near Park Terrace. On each bridge there will be two openings in the roadway, one near each curb. These openings are 4 ft. 3 inches long, parallel to the street, and 2 ft. 6 inches wide. They are fitted with removable covers, designed in this office and built by the Sessions Company of Bristol.

Plans have been completed for the bridge over the north branch of the Park River in connection with the extension of Capitol Avenue across the tracks of the New York, New Haven & Hartford Railroad to meet the Boulevard near Arbor Street. This will be of reinforced concrete 75 feet wide, giving a roadway 50 feet wide and providing for a future installation of street railway tracks.

PAVING DIVISION.

IMPROVED PAVEMENT.

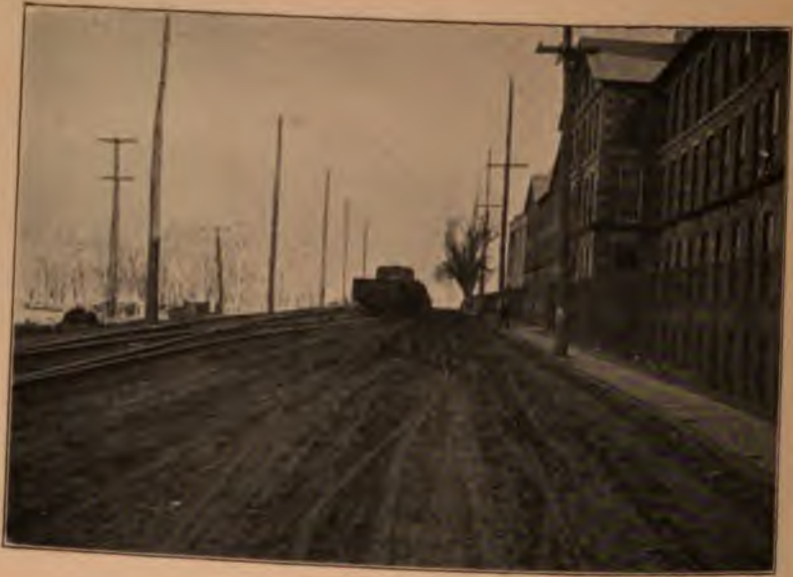
Under this head are included all pavements other than macadam (or concrete pavements substituted therefor), being hard surfaces laid over a cement concrete foundation, and consisted for the season of 1917 of laying of sheet asphalt and granite block. The laying of sheet asphalt included both the new paving work and resurfacing. One and four-tenths miles of improved pavement were laid without petition of the property owners, and in addition portions of Sheldon Street, Sequassen Street and Van Dyke Avenue on petition of the abutting property owners. The paving of Huyshope Avenue from Charter Oak Avenue to Masseek Street was petitioned for, and a contract for this work was let, but owing to the late start made by the Connecticut Company on its tracks, the City was unable to take up its work before cold weather set in. This paving will be completed during 1918.

At the last session of the General Assembly, an amendment to the City's Charter was passed, giving the necessary authority for the laying of four miles of improved pavement without petition. This will enable the City to undertake a paving program comparing favorably with that of other cities of the size of Hartford and, in accordance with the great need for better roadways to meet the ever-increasing demands of traffic. Present financial conditions due to the war will of necessity limit this work to some extent, but when these conditions are improved the city should take full advantage of its authority to lay four miles of pavement each year.

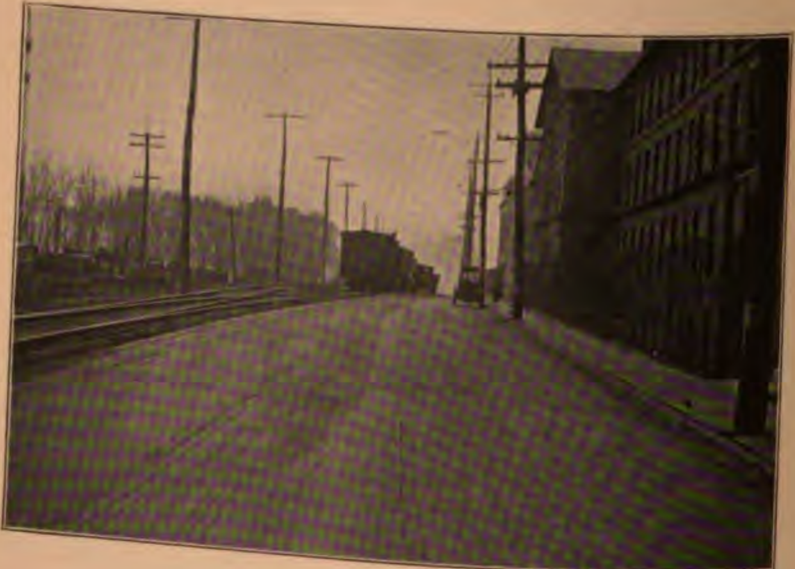
NEW PAVEMENT.

The following streets were paved during 1917:

Street.	Section.	Pavement.
Albany Avenue	Woodland Street to State Road	Asphalt
Ann Street	Allyn Street to Main Street	Asphalt
Ferry Street	Front Street to foot of hill	Asphalt
Ferry Street	Foot of hill to Conn. Boulevard	Granite Block
Kilbourn Street	Front Street to Charles Street	Asphalt
Kilbourn Street	Charles Street to Conn. Boulevard	Granite Block
North Street	Windsor Street to Village Street	Asphalt
Pleasant Street	Windsor Street to Winthrop Street	Granite Block
Sequassen Street	Huyshope Avenue to foot of hill	Asphalt
Sequassen Street	Foot of hill to Van Dyke Avenue	Granite Block
Sheldon Street	Commerce Street to Van Dyke Avenue	Asphalt
Van Dyke Avenue	Sheldon Street to Masseek Street	Asphalt
Windsor Avenue	Capen Street to Westland Street	Asphalt



VAN DYKE AVENUE
Before Paving



VAN DYKE AVENUE
Showing New Sheet Asphalt Pavement

In the case of Ann Street special precautions were taken to guard against possible settlements of the pavement due to movement of the sub-soil.

A new sewer had been built in this street and the customary installations made by the various public service corporations shortly before the paving operations were begun.

The sub-soil is clay and considerable trouble was experienced in keeping the trenches in shape for travel in the interval between the completion of the underground work and the laying of the pavement. The roadway was in a very unsatisfactory condition most of the time, particularly after heavy rains. Because of these adverse sub-soil conditions, it was found advisable to reinforce the concrete base of the sheet asphalt pavement. Clinton wire-mesh reinforcing of extra heavy section was embedded in the concrete pavement base from one to two inches above the surface of the sub-grade. The pavement is now in perfect condition after an exceptionally hard winter.

In connection with the paving work, the City reset the curb and walks on the streets named above and installed new curb on Huyshope Avenue. This work was let in two contracts, the Candee Stone Company doing the work on Sheldon Street, Sequassen Street, Van Dyke Avenue and Huyshope Avenue; and the Miller Sidewalk Company the work on the other streets named in the foregoing list. By this method the curb work was done in such time and manner as to coöperate with the paving work on each street, as would have been impossible under the old system of ordering each owner to do the work in front of his property, and at far less expense to the property holders.

39,621 square yards of new improved pavement were laid during 1917 at a cost to the City and property owners of $74,945.82. The City now has 17.39 miles of improved pavement, covering a total area of 422,156.42 square yards.

Tables giving various paving statistics are appended to this report.

RESURFACING.

Windsor Avenue was resurfaced between the east curb and the east rail of the double tracks from the Tunnel to Canton Street.

Allyn Street was wholly resurfaced its entire length from Trumbull Street to Union Place.

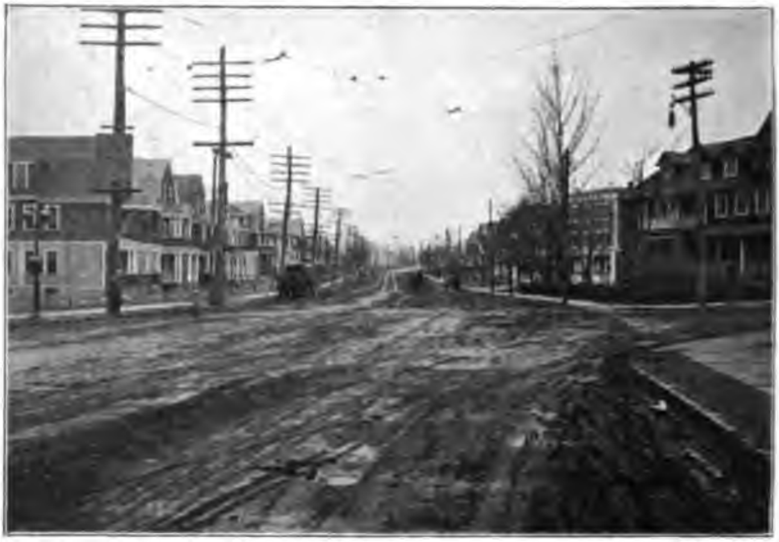
A much needed improvement was carried out on Pratt Street. Here the lack of a suitable foundation had caused many depressions which held water. This, combined with the fact that the asphalt over the entire roadway had worn down to an average of one-half inch in thickness, necessitated extensive repairs every year. The old asphalt was laid over a former brick pavement, which in turn had no foundation other than the natural soil. This unsatisfactory construction was replaced by a 6-inch cement concrete foundation, supporting a 3-inch wearing surface of asphalt.

The entire resurfacing covered 10,229 square yards at a cost to the city of $15,505.79. These figures do not include the yardage laid by the Connecticut Company on the Windsor Avenue resurfacing in connection with the City's work.

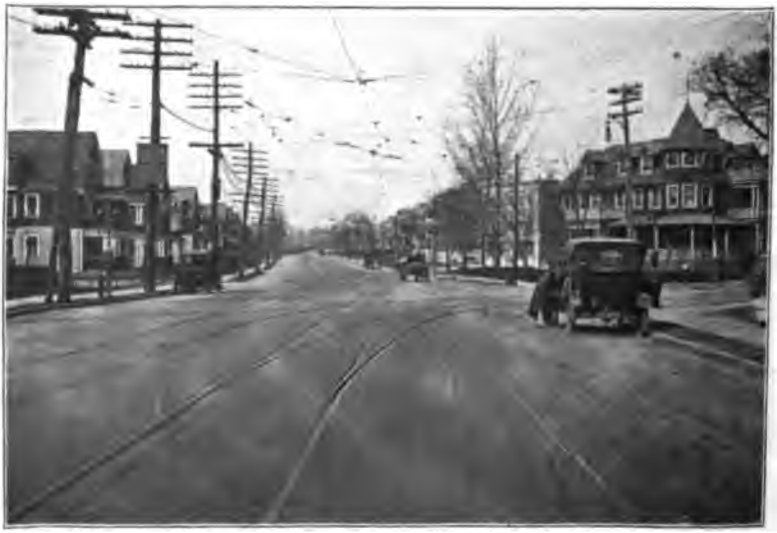
PAVING REPAIRS.

All worn places which appear in the asphalt pavements before the guarantee expires (usually five years) are repaired by and at the expense of the contractor who laid the pavement. All repairs, both worn places and cuts, are restored under the supervision of this Department. In the case of cuts caused by new duct lines, enlarging mains, or sewer connections, the paving contractor is paid directly by the parties responsible for the cuts.

During the past year $5,356.92 was expended for repairs by the City on improved paved streets. This amount proportioned over the 382,535.42 square yards of such pavements which existed in the city on March 31, 1917, gives $0.014 as the average cost per square yard for repairs. This cost includes also repairs made in granite block pavements.



ALBANY AVENUE AT BLUE HILLS AVENUE
Before Paving



ALBANY AVENUE AT BLUE HILLS AVENUE
Showing New Sheet Asphalt Pavement

PAVING PROPOSED FOR 1918.

Owing to financial conditions due to the war it has been deemed best to lay but about one and one-quarter miles of improved paving during 1918, instead of the four miles allowable under the Charter. The work will be done on the following streets, and sheet asphalt will be laid:

Portland Street whole length.

Windsor Avenue from Westland Street to City Line.

The paving of Huyshope Avenue will be undertaken during the coming season, as will also the widening of High Street from Church Street to Main Street.

No resurfacing work is planned for 1918.

CORNERS CUT BACK TO LONGER RADII.

The practice of substituting long radius curves at curb intersections for those of 6-foot radius originally laid, has been continued in connection with the laying of improved pavement. The past season 65 corners were cut back to longer radii. These were chiefly corners in the streets paved or where resurfacing work was undertaken. No extra land was required for these improvements. The corners of the streets intersecting with High Street, Windsor Avenue and Portland Street in the sections to be paved in 1918 will be cut back to longer radii.

TRACK WORK.

Track profiles were furnished the Connecticut Company and the following work installed under the inspection of this Department.

Main Street new tracks were laid from Atheneum Street South to Pearl Street.

Albany Avenue rails were partly renewed and the tracks brought to a new grade from Woodland Street to the State Road just west of Baltimore Street. In connection with this work new double track special work was installed at Blue Hills Avenue and Albany Avenue.

On Windsor Ave. from Capen Street to Westland Street the old rails were not removed, but were laid to a new grade in connection with the paving work. The relaying of the old track on Huyshope Avenue was started and the new double tracks special work at Charter Oak Avenue installed, but the completion of the work was stopped by the extreme cold and stormy weather during the first part of December. The continued stormy weather caused the abandonment of this work until the spring of 1918.

New special work was installed at the intersection of State Street and American Row.

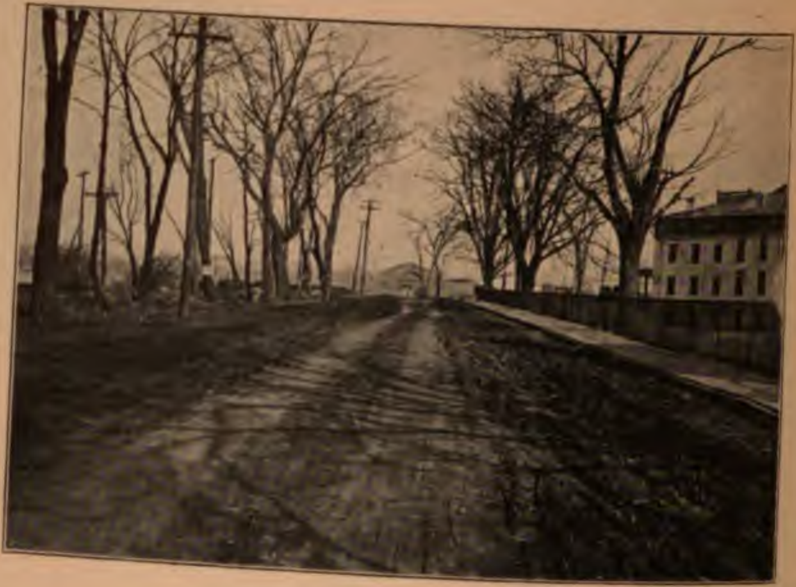
TRACK WORK PROPOSED FOR 1918.

New tracks will be installed on Windsor Avenue from Westland Street to City Line in connection with the paving work on that street.

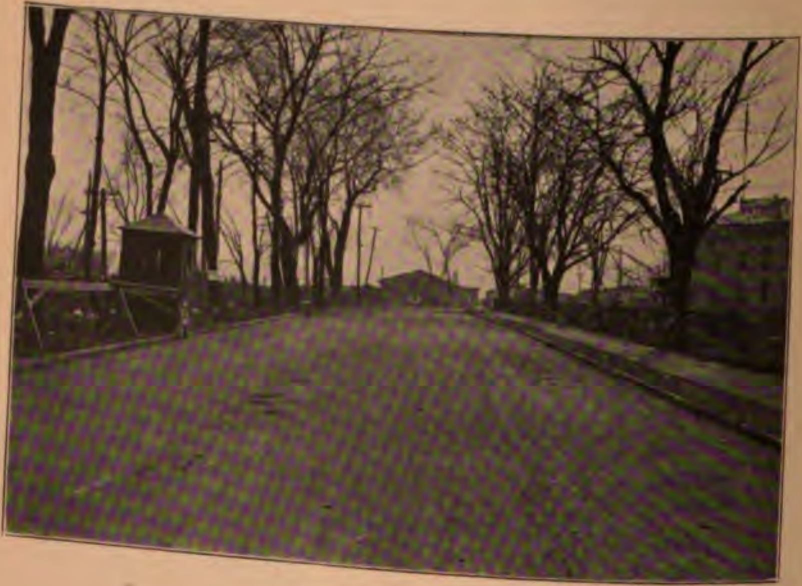
UNDERGROUND SYSTEM.

The amendment to the City Charter enabling the City to lay, without petition, four miles of improved pavement in any year has correspondingly increased the amount of underground work which must be installed prior to the actual paving work. Although the Board of Street Commissioners can order each public service corporation to install but two miles of underground work in any one year, the corporations themselves are beginning to see the advantages in underground distribution systems, and the amount of work installed by them during the past season is much greater than they could have been ordered to install. As an example of this, during the past year the Southern New England Telephone Company installed 5.7 miles of conduit in city streets. Location for these conduits and mains had to be assigned with care and thought, to avoid serious conflict in construction, and with consideration for the future needs in the streets.

During the past year 5.1 miles of gas and water mains and 9.1 miles of duct lines were installed, for which 218 underground locations were assigned; the total work being



SHELDON STREET
Before Paving



SHELDON STREET
Showing New Sheet Asphalt Pavement

distributed over 131 streets. At the present time the Hartford underground system comprises 153 miles of water mains, 150 miles of gas mains, 94 miles of duct lines and 150.7 miles of sewers.

In order to deal efficiently with the underground problems a set of 176 maps to a scale of 20 feet to an inch have been made to date showing probable positions of existing pipes and ducts. A card catalog system giving the street, company, location and size of ducts and the date the location was assigned, has simplified the work and a separate letter file of the underground correspondence with the different corporations gives a business basis for instant reference to assigned locations. During the year in many outlying streets, for which no underground maps exist, locations were assigned according to a definite system which determines the positions of the structures of the several public service corporations in their relations to each other and to the curb lines on the streets.

As the city grows and it becomes imperative to enlarge conduits and mains, the space between the street and curb lines may be needed. This need should invite caution against allowing encroachments that might in the future prove to be obstacles. Larger cities have found it necessary to use this space back of the curbs for sewers and water mains.

About thirty new underground maps were made the past season and all maps previously made were brought up to date. Maps showing the locations of the underground structures in the streets to be paved during the season of 1918 were also made, and new locations were assigned, where needed, sufficiently in advance of the construction work to allow the back-fill in the trenches to settle thoroughly before the concrete base for the new pavement was laid.

CONCRETE PAVEMENTS.

A concrete pavement was laid on the west roadway of Scarborough Street from Albany Avenue southerly about

2,000 feet to connect with the concrete pavement laid in 1916. No wire reinforcement was laid in this roadway. A similar pavement was laid on Greenfield Street from Blue Hills Avenue to Woodland Street, also the extension of Woodland Street to the gateway to Keney Park and the roadway connecting with Ridgefield Street along the north side of the small park between Woodland Street and Ridgefield Street. Wire-mesh reinforcing was laid in this pavement from Blue Hills Avenue easterly about 500 feet.

SURVEY AND STREET DIVISION.

The work done by this division consists of the field and office work necessary for the layout of new streets or for changes in street, building or veranda lines or grade on existing streets. Surveys and maps are also made on request of the Street Board, Park Board, or any other department of the city with exception of the Water Board. Lines and grades are given for street grading for the construction of catch basins, curbs and sidewalks, and for setting merestones or highway bounds.

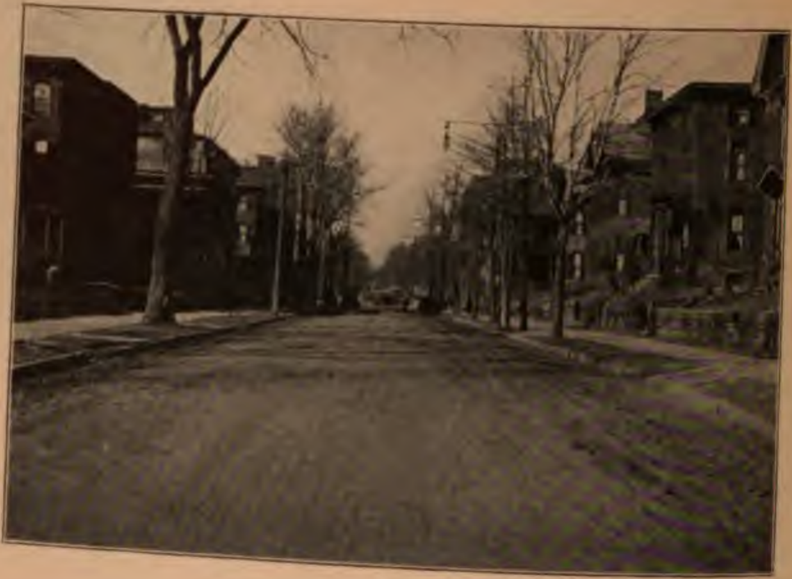
MERESTONES.

The word "merestones" is the local name for a highway bound or monument, being a survival of the old colonial name. The use of this term is practically confined to the vicinity of Hartford.

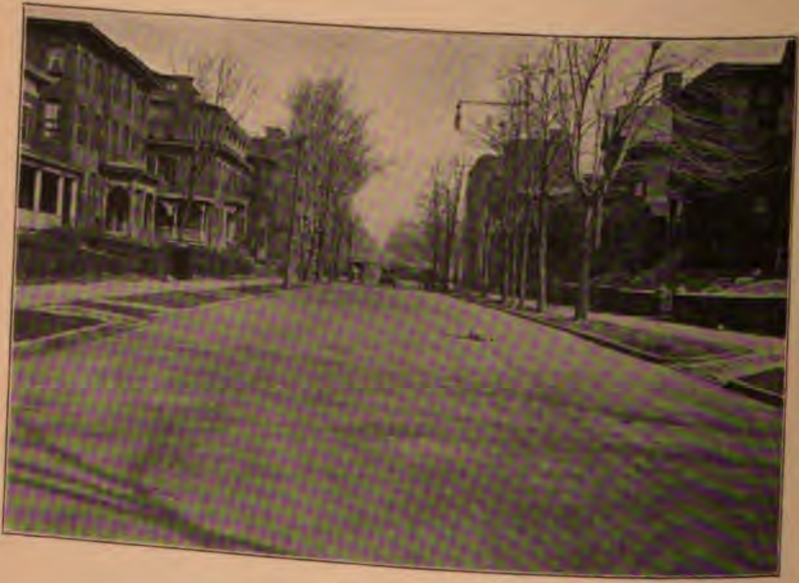
The city merestones are set on lines two feet within the street lines at intersections, curves or angle points. Granite stones were used from 1902 to 1909, but were too easily disturbed by the action of frost, therefore, reinforced concrete merestones five feet long and set in an anchorage of concrete were substituted which are much more stable as to position. Seventy-eight such bounds were set during the season of 1917.

NEW STREETS.

Layouts were prepared for the acceptance of the following streets:



ANN STREET
Before Paving



ANN STREET
Showing New Sheet Asphalt Pavement

Bonner Street from Ledger Street westerly to Wellington Street.
Brookfield Street from Hamilton Street to Wellington Street.
Burnham Street from Palm Street to Canaan Street.
Canaan Street from Tower Avenue to Morningside Street.
Church Street from Spruce Street to Garden Street.
Colebrook Street from Blue Hills Avenue to Ridgefield Street.
Carpenter Street extended to Bulkeley Avenue.
Crane Court from Windsor Avenue to Bellevue Street.
Durham Street from Palm Street to Westbrook Street.
Ellington Street from Broad Street to Fairview Street.
Euclid Street West from Palm Street to Canaan Street.
Evergreen Avenue from Warrenton Avenue to West Hartford Boulevard.
Fairview Street from White Street to Roxbury Street.
Grandview Terrace from White Street to Roxbury Steeet.
Harold Street from Palm Street to Lyme Street.
Harbison Avenue from Hillside Avenue to Brookfield Street.
Hillside Avenue from White Street to Linnmoore Street.
Humphrey Street from White Street to Linnmoore Street.
Lyme Street from Pomfret Street to Burnham Street.
Morningside Street West from Palm Street to Canaan Street.
Newton Street from Capitol Avenue to West Hartford Boulevard.
Nelson Street from Martin Street to Enfield Street.
Otis Street from Maple Avenue to Fairview Street.
Preston Street from Maple Avenue to Fairfield Avenue.
Simpson Street from Palm Street to Lyme Street.
Tower Avenue from Granby Street to Westbrook Street.
West Hartford Boulevard from South Whitney Street to Sisson Avenue.
Wellington Street from Bonner Street to Wellington Street.

NEW STREET, BUILDING AND VERANDA LINES.

Layouts were prepared for new street, building or veranda lines in lieu of existing lines on the following streets or on portions of the same:

Bushnell Street between Maple Avenue and Campfield Avenue.
Chapel Street.
Flatbush Avenue from Park River to City Line.
Greenfield Street near Woodland Street.
Homestead Avenue from Woodland Street to Milford Street.
Hudson Street near Capitol Avenue.
Preston Street between Wethersfield Avenue and Franklin Avenue.

NEW GRADES.

New grades were established in lieu of existing grades on the following streets or on portions of the same:

Bulkeley Avenue from Park Street to Kibbe Street.
Elm Street near Hudson Street.
Glendale Avenue west of Hillside Avenue.
Kenneth Street.
Linnmoore Street west of Fairfield Avenue.
Roxbury Street near Grandview Terrace.
Wilson Street west of Hillside Avenue.

SIDEWALK AND CURB LINES.

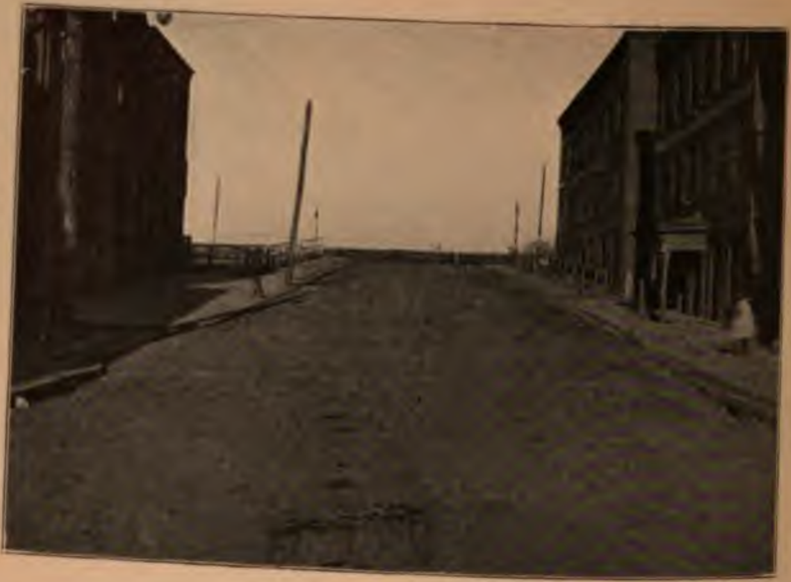
Layouts were made for sidewalk or curb lines on the following streets:

Ansonia Street,
Bradford Street from Newbury Street to Henry Street,
Catherine Street,
Dorothy Street,
Garden Street north of Westland Street,
Grant Street,
Guilford Street,
Henry Street,
Hoadley Place,
High Street from Church Street to Main Street.
Mansfield Street, East,
Mannz Street,
Pomfret Street,
Prospect Avenue north of Asylum Avenue.

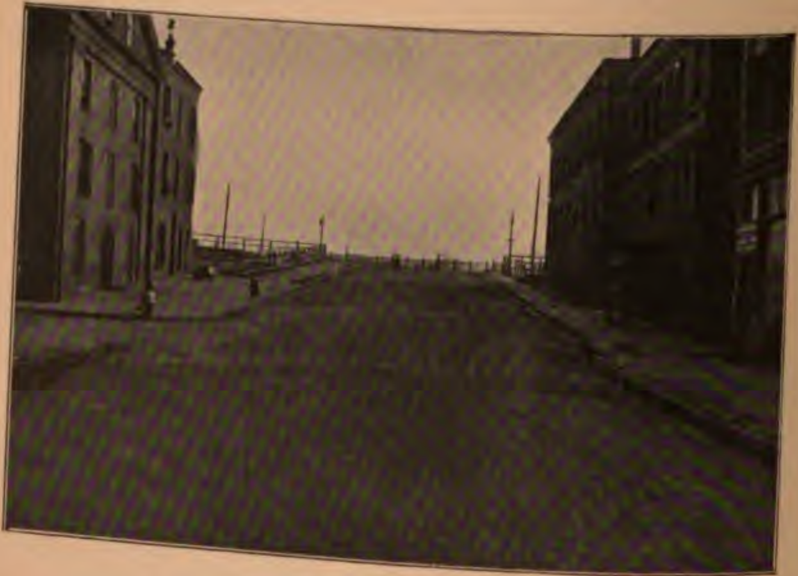
SOUTH MEADOW SURVEY.

During the past winter a topograpical survey was made of a portion of the south meadows. This survey, together with those previously completed, covers over 1,000 acres and embraces the entire territory bounded by Wethersfield Avenue on the west and the Connecticut River on the east and from Wawarme Avenue on the north to the Wethersfield town line on the south.

It is apparent from a superficial study of the problem, that these meadows should be reclaimed and that upward of 1,000 acres of land can be made available at a very conservative outlay.



KILBOURN STREET
Before Paving



KILBOURN STREET
Showing New Asphalt and Granite Block Pavement

The elevation of these meadows is such that they are yearly submerged when the Connecticut River reaches flood stages. This territory is, however, at practically the same elevation as the land within the protected area on which the Colt factory buildings stand, and would be just as adaptable for manufacturing purposes, if protected from the flood waters of the river.

Since this extensive area is traversed by a steam railroad in a north and south direction practically through its center, and is bounded on the east side by a navigable river, it seems that conditions could be made ideal for an extensive industrial development which would make full use of both of these transportation facilities. Whatever form the development finally takes it will be necessary to build a dyke connecting with the present dyke at Wawarme Avenue and extending substantially parallel with the river to the Wethersfield town line and thence along this line to Wethersfield Avenue.

Engineering problems will present themselves, but none of them appear especially difficult. It will be necessary for example to pump all sewage from within the dyke in times of flood, and it may be advisable to provide reservoirs to pond storm water until such time as it may be drained off by gravity.

If it were possible, the logical step would be for the City to acquire possession of the entire property affected, after which the present boundary lines could be ignored, a comprehensive development of streets worked out and the tracts sold off as needed.

If the city continues to grow in the next twenty years as it has in the past twenty years this territory must be utilized.

NORTHWOOD CEMETERY SURVEY.

Practically the entire time of a survey party was given during the latter part of the winter and early spring to a survey of the Northwoods Cemetery tract.

This land was purchased by the city in 1916 as authorized by the voters at the spring election of that year.

The tract containing 95 acres is located adjacent to and north of Keney Park, its easterly boundary being about 1,000 feet west of Windsor Avenue with which it is connected by a road recently built.

The boundaries were established and a complete topographical survey made, from which at a later date maps will be prepared as a basis for development.

PRIVATE DRAINS.

This branch of the Department's activities was inaugurated fifteen years ago. Up to the present time 8311 permits have been issued for work on drains, making an average of about 554 permits per year.

There were 68 licenses issued in the past year to drainlayers for the laying of private drains in accordance with the ordinances of the city and the rules and regulations of the Board of Street Commissioners. This is an increase of two over the preceding year. These drainlayers can be divided into three classes, viz: first, contractors, who lay drains only; second, plumbers, who in connection with their regular work need a drainlayer's license, and third, private and general contractors, who, wishing to save time and labor, have taken out licenses themselves to do work. Among the third class there are some non-resident contractors.

During the past year 513 permits were issued to various drainlayers for the laying of new drains and repairing and relaying of old and existing drains.

CHEMIST AND TESTING DIVISION.

During the year the various tests on municipal supplies such as coal, asphalt, asphaltic mixtures, fluxes, road oils, cement, sand, gravel, brick, rubber fire hose, insulated wire, joint fillers, soap, cylinder oils, lubricants, greases, and gasoline were made by this Department. As usual, the greatest number were made on asphalt for plant control. The tests during the past year numbered about 400.

In conclusion, I take pleasure in testifying to the cordial and mutually helpful relations existing between this Department and the several other departments, boards and officials, and to the loyalty and industry with which my co-workers in the Department meet the duties imposed upon them.

Respectfully submitted,

ROSCOE N. CLARK,
City Engineer.

OFFICE DIVISION.

The general depression in all branches of construction work and new developments has been reflected in our general office work to a considerable extent. The requests for information, real estate transfers and permits issued have all fallen below the total of a year ago.

The numbers of real estate transfers taken from the Town Clerk's records and posted on our property maps, sprinkling book and filed in the properties index were two thousand eight hundred and sixty. The usual amount of title searching has been done in connection with the various assessments.

It was found necessary to add two new sections to our set of property maps, also three new tracings were made and several of the old sections revised.

The new buildings located and plotted on these property maps numbered 1074, which show an increase of 172 over the previous year. This is caused by the large number of buildings that were started a year ago and completed during the past season.

The customary set of maps for the Board of Assessors has been increased to 138 sections. These were made up as usual and delivered to the Board on November 15.

Wooster, Sherman and Dartmouth Streets were renumbered, and all new streets have been assigned numbers as fast as developed.

Two hundred and ten house number cards were issued. Ten house number maps were made. Twelve real estate sub-division plans filed with the Town Clerk were plotted in the map book used in connection with the land records.

As was explained in detail in last year's report, the assessment for street sprinkling and oiling still continues to be our largest assessment.

Four and thirty-seven hundredths (4.37) miles of streets were added to the list, and 0.97 of a mile deducted, leaving a total of 216 miles of frontage that was assessed.

The decrease in building operations is clearly shown by the fact that only 300 street and building lines were staked during the year, as compared with 620 during the previous year.

The number of liens for unpaid assessments described by this division, and filed by the Board of Street Commissioners is noticeably increasing. Two years ago the number of liens thus filed was about one hundred. During the past year 687 such liens were filed.

TRAFFIC RELIEF.

This Department has been actively concerned in the steps taken to provide new avenues of travel as a means of traffic relief. The achievement along these lines during the year has been noteworthy.

The layout of an extension of Capitol Avenue under the tracks of the New York, New Haven & Hartford Railroad from Willow Street to the Boulevard was legally adopted, and it is planned to build a new highway bridge over the Park River during 1918 in this connection. Unfortunately, the financial situation in which the New York, New Haven & Hartford Railroad finds itself, and the general economic conditions of the time, are temporarily interfering with the carrying out of the complete project. The steps already taken, however, assure the ultimate completion of this important improvement.

The extension of Prospect Street across the Park River from Arch Street to Sheldon Street is almost a reality at the close of the year. The layout of the street has been legally adopted, buildings removed and the new highway bridge over the Park River is well on towards completion.

The extension of Hudson Street from Buckingham Street across Capitol Avenue, Elm Street and the Park River connecting with Wells Street, just west of the Daniels' Mill building, is well along and should be completed during the season of 1918. It was necessary to move or demolish a number of substantial buildings in this connection and to build a highway bridge over the Park River. At the close of the fiscal year the work of removing the buildings was well along and substantial progress has been made on the new bridge.

After many hearings and much careful study the final assessment for the widening of Church Street from Main Street to Union Place was prepared, and in due time adopted by the Court of Common Council. It is expected that this improvement will be effected during 1918.

Substantial preliminary progress was made in connection with the widening of Morgan Street from Front Street to Main Street and the layout of the proposed Bulkeley Street from Main Street at Needham's Corner to the junction of Church and Trumbull Street with a branch to connect with Chapel Street.

The recommended appropriations for these last two projects were, however, defeated at the City Meeting in April.

For all these projects careful surveys were made and maps prepared, and, except in the case of Morgan Street and Bulkeley Street, the actual assessments figured.

MEN IN THE SERVICE.

A number of former members of this Department are now connected with the United States forces, either in this country or abroad.

Our regret at losing the services of these men is, however, relieved by the belief that they are doing more important work for the Nation and that the training which they received while serving the city has fitted them for positions of trust and responsibility.

It has been practically impossible to secure for the places vacated by these engineers new men who are fully qualified. Thus far, however, we have been able to make satisfactory readjustments for handling the work on hand, and it is hoped that by special efforts on the part of the present force the standard of the Department will be maintained.

In conclusion, I take pleasure in testifying to the cordial and mutually helpful relations existing between this Department and the several other departments, boards and officials, and to the loyalty and industry with which my co-workers in the Department meet the duties imposed upon them.

Respectfully submitted,

ROSCOE N. CLARK,

City Engineer.

TABLES

SEWER TABLE FOR YEAR ENDING MARCH 31, 1918.

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	Number Manholes	House Connect's		Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
							No.	Length					
Sewer System for District Section "A"	*West of Blue Hills Avenue.*												
Palm Street	Uphill St. to Westminster St.	L. C. Fay & Co.	48 39 36 33	Block Block Block Block	486.0 341.6 338.4 324.6	5	38	570	$19,560.88				
Westminster Street	Palm St. to Cornwall St.	L. C. Fay & Co.	30 36	Block Block	345.9 501.5	3	23	345					Begun previous to March 31, 1917. Total cost as follows: Section "A" $32,201.09 Section "B" 37,994.58 Inspection 2,673.00 Total $72,868.67 In 1916-17 table 49,298.28 Distributed here 23,570.39 Total Assessed $45,732.00 Paid by City 27,136.67
Cornwall Street	Westminster St. to Manchester Street	L. C. Fay & Co	36 33	Block Block	300.2 328.0	2	20	300					
Section "B"													
Hartland Street	Manchester St. to Simpson St.	D'Onfro Bros.					17	255	1,336.51	11,302.06	12,268.33		
Morningside Street	Blue Hills Ave. to W. of Cornell St.	D'Onfro Bros.					24	360					
Cornell Street	Burnham St. to Morningside St.	D'Onfro Bros.					1	15					
Euclid Street	Blue Hills Ave. to Cornell St.	D'Onfro Bros.					13	195					
Burnham Street	Blue Hills Ave. to W. of Cornell St.	D'Onfro Bros.					17	255					
Litchfield Street	Blue Hills Ave. to Hartland St.	D'Onfro Bros					32	480					
Inspection on above to	date								2,673.00				
Albany Avenue	Brook St. to Quiner St.												See Gully Brook Conduit below.
Bartholomew Avenue	Olive St. to near Belmont St.	John Manocchio & Co.	15	Tile	590.5	3	7		2,440.43		2,440.43		
Branford Street	Cornwall St. to Blue Hills Ave.	Manocchio & D'Ontro	10	Tile	567.5	2			1,741.25			$1,741.25	Built and paid for by private parties under special agreement with city and House Conn. permit.
Branford Street	Blue Hills Ave. easterly	Tozzoli & Bonadies	10	Tile	413.9	3	10	130	1,772.47		1,772.47		

SEWER TABLE FOR YEAR ENDING MARCH 31, 1918 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	Number Manholes	House Connect's		Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
							No.	Length					
Woodstock	Blue Hills Ave. easterly	Tozzoli & Bonadies	10 8	Tile Tile	40.0 271.9	3	7	100	1,772.47		1,772.47		
Canterbury St.	Westbourne Parkway to near Plainfield St.	Louis Petrossi	12 10	Tile Tile	891.7 732.6	5	55	425	3,260.94		3,260.94		
Chapel Street	At Ann St.	Street Department	18	Tile	38.0	1			169.22	$169.22			Connection for future sewer
Chester Street	Franklin Ave. to George St.	Louis Petrossi	18 15	Tile Tile	747.0 378.2	4	34	510					
George Street	Chester St. northerly	Louis Petrossi	10	Tile	141.0	1	4	60	4,199.06	562.15	3,636.91		
George Street	Chester St. to Cromwell St.	Louis Petrossi	10	Tile	194.1	1	5	75					
Colebrook Street	Palm St. to Blue Hills Ave.	Tozzoli & Bonadies	18 15 12 10	Tile Tile Tile Tile	97.2 225.0 307.7 570.4	5	31	465					
Holcomb Street	Palm St. to Blue Hills Ave.	Tozzoli & Bonadies	15 12 10	Tile Tile Tile	370.0 340.8 580.9	4	24	360	7,811.03	206.85	7,604.18		
Cornwall Street	Colebrook St. to Holcomb St.	Tozzoli & Bonadies	10	Tile	250.1	1	9	135					
Cornwall St.	Holcomb St to Andover St	Tozzoli & Bonadies	10	Tile	249.5	1	5	75					
Cromwell Street	Franklin Ave. to George St.	Louis Petrossi	24 20	Tile Tile	824.2 298.8	4	36	540	$4,842.93	$646.78	$3,696.15		
Enfield Street	Intercepting Sewer to Capen St.	N. C. Casciano & Co.	18 10	Tile Tile	107.5 1104.1	6	46	690	4,112.12		4,112.12		
Greenfield St.	Enfield St. to Garden St.	N. C. Casciano & Co.	10	Tile	154.7	1	6	90					
Enfield Street	Edgewood St. to Capen St.	John Manocchio & Co.	10	Tile	200.4	1	4	60	478.50		478.50		
Enfield Street	Westland St. to Winchester St.	Berardini Silvestri	10	Tile	438.4	2	11	198	1,228.84		1,228.84		
George Street Greenfield Street	See Chester St. above See Enfield St. above												

SEWER TABLE FOR YEAR ENDING MARCH 31, 1918 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	Number Manholes	House Connect's		Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
							No.	Length					
Gully Brook Conduit	Albany Ave. to Mather St.	O'Neil Bros.	8'9" x 9' 6" 8' 8" x 8' 6"	Reinf. Concrete Reinf. Concrete	125.9 1269.3	2	17		29,449.93	22,763.73	10,829.27		Begun previous to April 1, 1917: Cost of construction to date $62,596.21 Right of way for part built 732.88 Total cost to date 63,329.09 Cost as in 1916-17 table 29,736.09 Cost distributed here 33,593.00 Not completed Mar. 31, 1918
Gully Brook Conduit	At Edgewood St.	C. H. Slocomb & Co.	84	Concrete	101.7	1			4,143.07				
Hebron Street	Cornwall St. to Granby St.	N. C. Casciano & Co.	12 10	Tile Tile	40.3 426.0	2			1,130.00			1,130.00	Built and paid for by private parties under agreement with City and House connection permit 8196. Cost Estimated.
Holcomb Street	See Colebrook St. above												
Mather Street	See Gully Brook Conduit above												
McMullen Avenue	Victoria Road to City Line	N. C. Casciano & Co.	8	Tile	165.0	1			300.00				Built and paid for by Town of Wethersfield.
Monroe Street	White St. to near Ansonia St.	William T. Ryan	15 10	Tile Tile	348.0 110.0				1,596.70		1,596.70		Not completed Mar. 31, 1918. Data given to that date only.
Olds Place	See South St. below												
Pleasant Street	Windsor St. to Winthrop St.								17.50	17.50			Replacing paving over trench only.
Private Lands	New Britain Ave. at Roslyn St. to Park River	N. C. Casciano & Co.							$152.27	$152.27			Begun previous to April 1, 1917. Portal at river, only, built this year.

SEWER TABLE FOR YEAR ENDING MARCH 31, 1918 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	Number Manholes	House Connect's No.	House Connect's Length	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
Quiner Street	See Gully Brook Conduit above												
South Street	From meadow ditch through private lands, Olds Place and South Street to Franklin Avenue	F. A. Barone	73½ x 66 73½ x 66	Concrete Concrete Invert Block Arch	740.6 1250.0	4			43,099.87	43,099.87			Begun previous to April 1, 1917. Cost of construction to date $51,177.37 Cost of right of way 417.50 Total cost to date 51,594.87 Not completed Mar. 31, 1918
Windsor Avenue	From R. R. culvert south of Fishfry St. to Tower Ave.	O'Neil Bros.	43 x 48	Concrete	709.0	3		48	6,036.67	5,387.75	$648.92		Construction cost $5,733.67 Right of way cost 303.00
Woodstock Street	See Branford St. above												
Totals............	....	....	....	....	19378.1	71	496	6,731	$141053.19	84,308.18	53,573.76	$2,871.25	

Sewers built in year ending March 31, 1918, 19,378.1 feet = 3.67 miles
Sewers in use March 31, 1917 approximately 147.07 miles
Sewers in use March 31, 1918 approximately, 150.74 miles

Town of Wethersfield paid $300.00 (See McMullen Avenue)

SUMMARY BY MATERIALS AND SIZES OF SEWERS BUILT DURING YEAR ENDING MARCH 31, 1918

Material	Size	Length in Feet		Miles		Percentage of Length	
Tile	8-inch	436.9		0.08		2.2	
Tile	10-inch	6,173.6		1.17		31.9	
Tile	12-inch	1,580.5		0.30		8.2	
Tile	15-inch	1,911.7		0.36		9.9	
Tile	18-inch	989.7		0.19		5.1	
Tile	20-inch	298.8		0.06		1.5	
Tile	24-inch	824.2		0.16		4.2	
Tile	Total for All Sizes		12,215.4		2.32		63.0
Concrete (Plain)	43-inch x 48-inch	709.0		0.14		3.7	
Concrete	73½-inch x 66-inch	1,990.6		0.37		10.3	
Concrete	84-inch	101.7		0.02		0.5	
Concrete (Plain)	Total for All Sizes		2,801.3		0.53		14.5
Reinforced Concrete	8 ft. 8 ins. x 8 ft. 6 ins.	1,269.3		0.24		6.6	
Reinforced Concrete	8 ft. 9 ins. x 9 ft. 6 ins.	125.9		0.02		0.6	
Reinforced Concrete	Total for All Sizes		1,395.2		0.26		7.2
Vitrified Block	30-inch	345.9		0.07		1.8	
Vitrified Block	33-inch	652.6		0.12		3.4	
Vitrified Block	36-inch	1,140.1		0.22		5.9	
Vitrified Block	39-inch	341.6		0.06		1.7	
Vitrified Block	48-inch	486.0		0.09		2.5	
Vitrified Block	Total for All Sizes		2,966.2		0.56		15.3
	Grand Total		19,378.1		3.67		100.00

SUMMARY BY METHOD OF PAYMENT OF SEWERS BUILT DURING YEAR ENDING MARCH 31, 1918

	Length in Ft	Miles	% L'gth	Cost	% Cost
Entire cost assessed on property benefited,	5,403.7	1.02	27.9	$14,890.00	10.6
City paid part, part assessed on property,	10,747.0	2.04	55.6	79,553.08	56.4
City paid entire cost,	2,028.6	0.38	10.4	43,438.86	30.7
Paid for by private parties,	1,083.8	0.20	5.3	2,871.25	2.1
Town of Wethersfield paid for	165.0	0.03	0.8	300.00	0.2
Total,	19,378.1	3.67	100.0	$141,053.19	100.0

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1918

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	North side and tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Albany Avenue	East St. to Magnolia St.	Paved	Sheet Asphalt	D. T.	1.69	2.8845	Nov. 21, 1914	Nov. 21, 1919
Albany Avenue	Magnolia to Woodland St.	Paved	Sheet Asphalt	D. T.	1.58	2.6600	Jan. 22, 1917	Jan. 22, 1922
Albany Avenue	Woodland to Baltimore St.	Paved	Sheet Asphalt	S. & D.	1.81	3.7711	....	....
Allyn Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	Jun. 12, 1899	June 12, 1904
Allyn Street	Trumbull St. to Union Pl.	Resurfaced	Sheet Asphalt	No	1.19	By City	Jan. 9, 1918	Jan. 9, 1923
Amer. & Cent. Rows	East of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Amer. & Cent. Rows	East of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum St. to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Ann Street	Allyn St. to Main St.	Paved	Sheet Asphalt	No	1.85	2.8726	Aug. 22, 1917	Aug. 22, 1922
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street	Spruce St. to Farm'ton Av.	Tracks relaid	Granite Block	D. T.	......	....	1911	....
Asylum Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford St. to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Asylum Street	Main St. to Spruce St.	Repaved	Sheet Asphalt	S. & D.	2.28	By City	Oct. 12, 1908	Oct. 12, 1918
Asylum Street	Spruce St. to Garden St.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Spruce St. to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Hopkins St. to Farm'ton Av	S. side resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Asylum Street	Garden St. west to Header	N. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Jun. 23, 1914	June 23, 1919
Atheneum Street	Prospect St. to Main St.	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Atheneum St., South	Main St. to Prospect St.	Paved	Sheet Asphalt	No	1.60	By City	Nov. 2, 1915	Nov. 2, 1920
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1897	....
Broad Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Capitol Avenue	Lafayette St. to Park River	Paved	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 26, 1905
Capitol Avenue	Lafayette St. to Broad St.	N. side resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Lafayette St. to Broad St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Broad St. to Park River	Both sides resurf'd	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.	......	....	1895	....
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	.65	By City	Dec. 6, 1911	No guarantee
Capitol Avenue	Park Ter. to Sigourney St.	Wid'd and repav'd	Sheet Asphalt	D. T.	1.66	By City	Jan. 22, 1917	Jan. 22, 1922
Central Row	Main St. to Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1918 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Central Row	Main St. to Post Office	Repaved	Sheet Asphalt	D. T.	$2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Church Street	Main St. to Trumbull St.	Paved	Sheet Asphalt	No	2.59	$2.1163	Nov. 8, 1897	Nov. 8, 1902
Church Street	Main St. to Trumbull St.	Resurfaced	Sheet Asphalt	No	1.67	By City	July 28, 1909	July 28, 1914
Church Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	1.58	1.8608	Jan. 22, 1917	Jan. 22, 1922
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Church Street	Union Pl. to Spruce St.	Resurfaced	Sheet Asphalt	No	1.39	By City	Sep. 29, 1913	Sep. 29, 1918
Church Street	Spruce St. westerly	Paved	Granite Block	No	3.63	4.1578	Oct. 15, 1913	Oct. 15, 1914
Connecticut Boulev'd	State St. to Ferry St.	Paved	Sheet Asphalt	D. T.	1.58	2.8939	Jan. 22, 1918	Jan. 22, 1922
Farmington Avenue	Asylum Av. to Woodland St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue	Asylum Av. to Sigourney St.	Full width resurf.	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Both sides resurf'd	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1909	....
Farmington Avenue	Woodland to Tremont St.	Paved	Sheet Asphalt	D. T.	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue	Tremont St. to Prospect Av.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ferry Street	Front St. to foot of Hill	Paved	Sheet Asphalt	No	1.85	1.8246	Aug. 22, 1917	Aug. 22, 1922
Ferry Street	Foot of Hill to Conn. Bl'vd	Paved	Granite Block	No	4.03	3.9341	Dec. 18, 1917	Dec. 18, 1918
Ford Street	Pearl St. to Asylum St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Ford Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1913
Front Street	State St. to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Front Street	State St. to Morgan St.	Paved	Sheet Asphalt	No	2.15	2.8721	Dec. 5, 1913	Dec. 5, 1918
Gold Street	Main St. to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sep. 11, 1898	Sep. 11, 1903
Grove Street	Main St. to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect St. to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1898	....
Hamilton Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Haynes Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church St. to Main St.	Resurfaced	Sheet Asphalt	No	1.27	By City	May 19, 1911	May 19, 1916
High Street	Asylum St. to Church St.	Resurfaced	Sheet Asphalt	No	0.89	By City	June 23, 1914	June 23, 1919
Hopkins Street	Broad St. to Asylum St.	Paved	Sheet Asphalt	No	2.58	2.3865	June 12, 1899	June 12, 1904
Kilbourn Street	Charles St. to Conn. Bl'vd	Paved	Granite Block	No	4.03	6.2049	Dec. 18, 1917	Dec. 18, 1918
Kilbourn Street	Front St. to Charles St.	Paved	Sheet Asphalt	No	1.85	2.0632	Aug. 22, 1917	Aug. 22, 1922
Kinsley Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903
Laurel Street	Bridge over Park River	Paved	Brick	S. T.	......	....	1894	....
Laurel Street	Bridge over Park River	Repaved	Brick	S. T.	2.40	By City	July 11, 1900	....

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1918 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Lewis Street	Pearl St. to Gold St.	Paved	Sheet Asphalt	No	$2.51	$1.808	Sep. 24, 1900	Sep. 24, 1905
Main Street	Arch St. to Morgan St.	Paved	Sheet Asphalt	D. T.	2.49	5.4887	Dec. 14, 1896	Dec. 14, 1901
Main Street	Morgan St. to Windsor Ave.	Paved	Sheet Asphalt	D. T.	2.70	4.6395	Oct. 11, 1897	Oct. 11, 1902
Main Street	Wyllys St. to Arch St.	Paved	Sheet Asphalt	D. T.	2.66	4.5750	Oct. 25, 1897	Oct. 25, 1902
Main Street	West of tracks along east side of South Green	Resurfaced	Sheet Asphalt	D. T.	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Across S. end of So. Green	Resurfaced	Sheet Asphalt	No	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Wyllys to Charter Oak Ave.	E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Main Street	State St. north	Tracks repaved	Wood Block	D. T.	......	....	1903	....
Main Street	Eng. House 1 to Buck'gham	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1916	....
Main Street	Eng. House 1 to Wells St.	W. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Char. Oak Av. to Atheneum	E. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Buckingham St. to Atheneum St., South	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1916	....
Main Street	Atheneum St. south to Pearl	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1917	....
Main Street	Jefferson St. to Park St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Windsor St. to Windsor Av.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Jefferson St. to Park St.	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1912	....
Main Street	Wyllys to N. end South Gr'n	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1908	....
Main Street	Park St. to Eng. House No. 1	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Triangle N. end South Gr'n	Resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Atheneum St. to Cent. Row	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	State St. to Windsor St.	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Wells St. to Ann St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Ann St. to Lumber St North 200' on Windsor Ave.	Whole St. resurf'd E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Maple Avenue	Congress St. to Morris St.	Paved	Sheet Asphalt	D. T.	1.58	2.6300	Jan. 22, 1917	Jan. 22, 1922
Market Street	State St. to Temple St.	Paved	Sheet Asphalt	S. T.	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1903
Market Street	Temple St. to Morgan St.	Paved	Sheet Asphalt	S. T.	2.56	2.3270	Oct. 9, 1899	Oct. 9, 1904
Market Street	Morgan St. to Pleasant St.	Paved	Sheet Asphalt	No	1.69	2.0173	Nov. 21, 1914	Nov. 21, 1919
Market Street	State St. to Morgan St.	W. side and tracks resurfaced	Sheet Asphalt	S. T.	1.65	By City	Aug. 4, 1904	Aug. 4, 1914
Market Street	Temple St. to Morgan St.	E. side resurfaced	Sheet Asphalt	S. T.	0.89	By City	June 23, 1914	June 23, 1919
Market Street	State St. to Morgan St.	Tracks resurfaced	Sheet Asphalt	S. T.	......	....	1914	....
Marsh Court	Market St. to Village St.	Paved	Sheet Asphalt	No	2.15	1.1455	Dec. 5, 1913	Dec. 5, 1918

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1918 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Morgan Street	Market St. to Main St.	Paved	Granite Block	S. T.	$3.09	$2.1525	Dec. 27, 1898	Aug. 27, 1899
Morgan Street	Intersection with Front St.	Paved	Granite Block	D. T.	......	By City	Dec. 5, 1913	No guarantee
Morgan Street	Front St. to Market St.	Paved	Sheet Asphalt	D. T.	2.15	3.1641	Dec. 5, 1913	Dec. 5, 1918
Mulberry Street	Main St. to Wells St.	Paved	Sheet Asphalt	No	2.55	2.6970	Nov. 14, 1898	Nov. 14, 1903
North Street	Windsor St. to Village St.	Paved	Sheet Asphalt	No	1.85	2.0418	Aug. 22, 1917	Aug. 22, 1922
Park Street	Main St. to Zion St.	Paved	Sheet Asphalt	D. T.	1.58	1.6267	Jan. 22, 1917	Jan. 22, 1922
Park Street	Under Railroad Bridge	Paved	Granite Block	S. T.	3.35	By City	Nov. 27, 1899	July 27, 1900
Park Street	Under Railroad Bridge	Relaid	Granite Block	S. T.	1.35	By City	Oct. 4, 1910	No guarantee
Park Street	Under Railroad Bridge	Repaved	Granite Block	D. T.	......	By Railroad	1912	....
Park Street	Bridge over Park River	Paved	Sheet Asphalt	D. T.	......	....	1898	....
Park Street	Bridge over Park River	Relaid	Sheet Asphalt	D. T.	......	By Railroad	1912	....
Pearl Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	2.89	3.8380	July 22, 1895	July 22, 1900
Pearl Street	Main St. to Ford St.	Repaved	Sheet Asphalt	S. T.	2.70	By City	Sep. 10, 1903	Sep. 10, 1918
Pearl Street	Main St. to Ford St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Pleasant Street	Winthrop St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.3373	July 11, 1898	July 11, 1903
Pleasant Street	Winthrop to Windsor St.	Paved	Granite Block	No	4.03	5.2958	Dec. 18, 1917	Dec. 18, 1918
Pleasant Street	Windsor St. to Railroad	Paved	Sheet Asphalt	No	2.15	2.7830	Dec. 5, 1913	Dec. 5, 1918
Pratt Street	Main St. to Trumbull St.	Paved	Brick	No	......	By City	1892	....
Pratt Street	Main St. to Trumbull St.	Surfaced	Sheet Asphalt	No	1.68	1.4285	Aug. 14, 1899	Aug. 14, 1904
Pratt Street	Main St. to Trumbull St.	Repaved	Sheet Asphalt	No	2.19	By City	Nov. 26, 1917	Nov. 26, 1922
Prospect Street	Atheneum St. to Cent. Row	Paved	Sheet Asphalt	No	2.55	2.5256	July 25, 1898	July 25, 1903
Prospect Street	Grove St. to Central Row	Resurfaced	Sheet Asphalt	No	1.27	By City	Oct. 23, 1912	Oct. 23, 1917
Sequassen Street	Hupshope Av. to foot of hill	Paved	Sheet Asphalt	No	1.77	3.3817	Dec. 18, 1917	Dec. 18, 1922
Sequassen Street	Ft. of hill to Van Dyke Av.	Paved	Granite Block	No	4.03	8.1669	Dec. 18, 1917	Dec. 18, 1918
Sheldon Street	Main St. to Union St.	Paved	Sheet Asphalt	No	2.20	2.5747	Oct. 4, 1911	Oct. 4, 1916
Sheldon Street	Union St. to Commerce St.	Paved	Sheet Asphalt	No	2.16	3.0100	Oct. 23, 1912	Oct. 23, 1917
Sheldon Street	Commerce St. to V. Dyke Av	Paved	Sheet Asphalt	No	1.77	2.2672	Dec. 18, 1917	Dec. 18, 1922
Spruce Street	Asylum St. to Church St.	Paved	Sheet Asphalt	No	2.51	3.0163	Oct. 1, 1900	Oct. 1, 1905
Spruce Street	Church St. northerly	Paved	Granite Block	No	3.63	4.8221	Oct. 15, 1913	Oct. 15, 1914
State Street	Main St. to Commerce St.	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
State Street	City Hall to Main St.	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. westerly	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. to Conn. Boul'v'd	Repaved	Sheet Asphalt	D. T.	2.16	By City	Dec. 9, 1912	Dec. 9, 1917
State Street	Conn. Boulv'd to Commerce	Covered	Macadam	No	......	By City	1908	....
State Street	Front St. to City Hall	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1918 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Talcott Street	Market St. to Main St.	Paved	Granite Block	No	$3.09	$2.7184	Sep. 26, 1898	May 26, 1899
Talcott Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.75	2.7184	Sep. 26, 1898	Sep. 26, 1903
Talcott Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	1.7221	Nov. 21, 1914	Nov. 21, 1919
Temple Street	Main St. to Market St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Temple Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	2.7883	Nov. 21, 1914	Nov. 21, 1919
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	E. side and tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1913
Trinity Street	Capitol Ave. to North end of Bridge	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27, 1898	June 27, 1903
Trumbull Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	No	1.55	By City	Dec. 30, 1915	Dec. 30, 1920
Trumbull Street	Church St. to Pratt St.	Resurfaced	Sheet Asphalt	No	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Pearl St. to Hicks St.	Paved	Granite Block	No	3.56	5.4946	Nov. 22, 1915	Nov. 22, 1916
Union Place	Asylum St. to Church St.	Paved	Granite Block	No	3.37	....	1894	....
Van Dyke Avenue	Sheldon St. to Masseek St.	Paved	Sheet Asphalt	No	1.77	2.1047	Dec. 18, 1917	Dec. 18, 1922
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Village Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.55	1.3329	Dec. 30, 1915	Dec. 30, 1920
Wethersfield Avenue	Wyllys St. to Bond St.	Paved	Sheet Asphalt	D. T.	1.55	2.3724	Dec. 30, 1915	Dec. 30, 1920
Windsor Avenue	Main St. to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sep. 11, 1899	Sep. 11, 1904
Windsor Avenue	Albany Ave. to Mather St.	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	July 21, 1914	July 21, 1919
Windsor Avenue	E. side Tunnel to Canton	Resurfaced	Sheet Asphalt	D. T.	1.19	By City	Jan. 9, 1918	Jan. 9, 1923
Windsor Avenue	Main St. to Canton St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1907	....
Windsor Avenue	Canton St. to Capen St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Windsor Avenue	Capen St. to Westland St.	Paved	Sheet Asphalt	D. T.	1.81	....	....	....
Windsor Street	Main St. to Park.	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903
Windsor Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.69	2.5563	Nov. 21, 1914	Nov. 21, 1919

Note—Price given, except for resurfacing, is for completed pavement (asphalt and concrete, exclusive of excavation).

IMPROVED PAVEMENTS IN HARTFORD APRIL 1, 1918

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Albany Avenue	Windsor Av. to Baltimore St	D. T.	44683.00					1.48
Allyn Street	Trumbull St. to Union Place	No	6041.00					0.29
Amer. & Cent. Rows	East of Post Office	D. T.		1885.00				0.03
Ann Street	Asylum St. to Main St.	No	6647.66					0.38
Asylum Street	Spruce St. to Farmington Av.	D. T.		4658.72				0.16
Asylum Street	Spruce St. to Farmington Av.	D. T.	1701.58					
Asylum Street	Main St. to Spruce St.	S. T. & D. T.	10351.20					0.48
Atheneum Street	Prospect St. to Main St.	No	558.33					0.07
Atheneum St. South	Main St. to Prospect St.	No	1387.00					0.07
Broad Street	Bridge over Park River	No	451.55					0.02
Capitol Avenue	Lafayette St. to Laurel St.	D. T.	19901.44					0.81
Central Row	Main St. to Post Office	D. T.	2000.00					0.05
Church Street	Main St. to Spruce St.	No	7005.74					0.46
Church Street	Spruce St. westerly	No		238.17				0.01
Connecticut Boul'vd	State St. to Ferry St.	D. T.	2791.10					0.08
Farmington Avenue	Asylum to Prospect Aves.	D. T.	42630.44					1.60
Ferry Street	Front St. to Foot of Hill	No	907.5					0.06
Ferry Street	Foot of Hill to Conn. Boul'vd	No		425.6				0.03
Ford Street	Pearl St. to Asylum St.	D. T.	2658.90					0.10
Front Street	Morgan St. to Sheldon St.	No	9774.75					0.56
Gold Street	Main St. to Lewis St.	No	1458.00					0.08
Grove Street	Main St. to Front St.	No	2342.07					0.19
Hamilton Street	Bridge over Park River	No	369.00					0.02
Haynes Street	Pearl St. to Asylum St.	No			718.42			0.05
High Street	Asylum St. to Main St.	No	6341.00					0.42
Hopkins Street	Broad St. to Asylum St.	No	3135.80					0.21
Kilbourn Street	Front St. to Charles St.	No	729.7					0.05
Kilbourn Street	Charles St. to Conn. Boul'vd	No		849.6				0.05

IMPROVED PAVEMENTS IN HARTFORD, APRIL 1, 1918 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Kinsley Street	Market St. to Main St.	No	1037.20					0.09
Laurel Street	Bridge over Park River	S. T.				411.00		0.02
Lewis Street	Pearl St. to Gold St.	No	1085.00					0.10
Main Street	Wyllys St. to Windsor Ave.	D. T.	56414.27					1.47
Main Street	State St. north	D. T.					500.00	0.06
Maple Avenue	Congress St. to Morris St.	D. T.	8725.10					0.24
Market Street	State St. to Morgan St.	S. T.	5255.28					0.25
Market Street	Morgan St. to Pleasant St.	No	2846.4					0.17
Marsh Court	Market St. to Village St.	No	552.95					0.08
Morgan Street	Market St. to Main St.	S. T.		1520.87				0.10
Morgan Street	Market St. to Front St.	S. T. & D. T.	2213.94					0.09
Morgan Street	Intersection of Front Street	D. T.		342.71				
Mulberry Street	Main St. to Wells St.	No	1298.85					0.08
North Street	Windsor St. to Village St.	No	278.4					0.02
Park Street	Main St. to Zion St.	D. T.	19208.20					0.84
Park Street	Under Railroad Bridge	D. T.		560.00				0.03
Park Street	Bridge over Park River	D. T.	555.50					0.02
Pearl Street	Main St. to Ford St.	D. T.	8188.50					0.32
Pleasant Street	Winthrop St. to Main St.	No	1010.41					0.07
Pleasant Street	Winthrop St. to Windsor St.	No		1286.5				0.08
Pleasant Street	Windsor St. to Railroad	No	2239.71					0.14
Pratt Street	Main St. to Trumbull St.	No	1438.00					0.11
Prospect Street	Atheneum St. to Central Row	No	1802.62					0.13
Sequassen Street	Huyshope Av. to Foot of Hill	No	1819.4					0.08
Sequassen Street	Foot of Hill to Van Dyke Ave.	No		489.1				0.02
Sheldon Street	Main St. to Van Dyke Ave.	No	9041.66					0.54
Spruce Street	Asylum St. to Church St.	No	2286.00					0.12
Spruce Street	Church St. northerly	No		1527.82				0.09
State Street	City Hall to Main St.	D. T.	1395.00					0.04

IMPROVED PAVEMENTS IN HARTFORD, APRIL 1, 1918 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
State Street	Front St. to Conn. Boulevard	D. T.	2609.94					0.09
State Street	Front St. westerly	D. T.	343.10					
State Street	Front St. to City Hall	D. T.		4501.81				0.15
Talcott Street	Market St. to Main St.	No		950.42				0.09
Talcott Street	Market St. to Main St.	No	340.20					
Talcott Street	Market St. to Front St.	No	1279.1					0.09
Temple Street	Main St. to Front St.	No	3084.67					0.19
Trinity Street	Capitol Ave. to Ford St.	S. T. & D. T.	6947.80					0.27
Trumbull Street	Pearl St. to Main St.	No	6718.9					0.29
Trumbull Street	Pearl St. to Hicks St.	No		1096.40				0.05
Union Place	Asylum St. to Church St.	No		3267.00				0.12
Van Dyke Avenue	Sheldon St. to Masseek St.	No	4460.0					0.32
Village Street	Windsor St. to Avon St.	No	3951.6					0.29
Wethersfield Avenue	Wyllys St. to Bond St.	D. T.	25044.00					0.76
Windsor Avenue	Main St. to Westland St.	D. T.	29539.6					1.12
Windsor Street	Main St. to the Park.	No		2018.10				0.06
Windsor Street	The Park to Avon St.	No	5998.32					0.29
Totals			**394909.18**	**25617.82**	**718.42**	**411.0**	**500.00**	**17.39**

Total Yardage all Pavements—422156.42 square yards.
Total Length—Asphalt 16.19 miles; Granite Block 1.07 miles; Wood Block 0.06 miles; Asphalt Block 0.05 miles; Brick 0.02 miles.
Total Length all Pavements—17.39 miles.

STREETS PAVED DURING YEAR ENDING MARCH 31, 1918.

Street	Section	Contractor	Pavement	Length in Feet	Total Number of Sq. Yds.	Asphalt Sq. Yd.	Contract Prices Concrete Cu. Yd.	Contract Prices Excavation Cu. Yd.	Total Cost to City & Property Owners. Includes Headers; R. R. not included	Assessment per Front Foot	Date of Final Payment	Guarantee Expires
lbany Ave.	Woodland St. to 250′ W. of Baltimore St.	Ed. Balf Co.	Sheet Asphalt	1,622	9,743.0	$0.99	$4.93	$1.14	*13,465.97			
nn St.	Allyn St. to Main St.	Ed. Balf Co.	Sheet Asphalt	1,674	5,477.4	.99	5.15	.95	13,815.66	$2.8725712	Aug. 22 1917	Aug. 22 1922
erry St.	Front St. to Foot of Hill	Ed. Balf Co.	Sheet Asphalt	339	907.5	.99	5.15	.95	1,852.35	1.8246158	Aug 22 1917	Aug. 22 1922
erry St.	Foot of Hill to Conn. Boulevard	O'Neil Bros.	Granite Block	153	425.6	†2.99	6.25	1.25	1,843.55	3.9341549	Dec. 18 1917	Dec. 18 1918
Kilbourn St.	Front St. to Charles St.	Ed. Balf Co.	Sheet Asphalt	253	729.7	.99	5.15	.95	1,542.92	2.0632861	Aug. 22 1917	Aug. 22 1922
Kilbourn St.	Charles St. to Conn. Boulevard	O'Neil Bros.	Granite Block	239	849.6	2.99	6.25	1.25	3,941.79	6.2049538	Dec. 18 1917	Dec. 18 1918
orth St.	Windsor St. to Village St.	Ed. Balf Co.	Sheet Asphalt	91	278.4	.99	5.15	.95	580.70	2.0418	Aug. 22 1917	Aug. 22 1922
leasant St.	Windsor St. to Winthrop St.	O'Neil Bros.	Granite Block	427	1,286.5	†2.99	6.25	1.25	5,889.38	5.2957957	Dec. 18 1917	Dec. 18 1918
equassen St.	Huyshope Ave. to Foot of Hill	Ed. Balf Co.	Sheet Asphalt	409	1,819.4	.97	4.80	.80	3,934.30	3.38173	Dec. 18 1917	Dec. 18 1922
equassen St.	Foot of Hill to Van Dyke Ave.	O'Neil Bros.	Granite Block	110	489.1	†2.99	6.25	1.25	2,258.96	8.16692	Dec. 18 1917	Dec. 18, 1918
heldon St.	Commerce St. to Van Dyke Ave.	Ed. Balf Co.	Sheet Asphalt	1,051	3,401.4	.97	4.80	.80	6,806.47	2.2672266	Dec. 18, 1917	Dec. 18, 1922
an Dyke Ave.	Sheldon St. to Masseek St.	Ed. Balf Co.	Sheet Asphalt	1,700	4,460.0	.97	4.80	.80	10,517.34	2.1047329	Dec. 18, 1917	Dec. 18, 1922
indsor Ave.	Capen St. to Westland St.	Ed. Balf Co.	Sheet Asphalt	1,960	9,753.4	.99	4.93	1.14	*8,496.43			
otals.........	....	....	....	10,028 1.9 miles	39,621.0				$74,945.82			

†Granite Block *1917 Cost only.

STREETS RESURFACED DURING YEAR ENDING MARCH 31, 1918.

Street	Section	Contractor	Pavement	Number of Sq. Yds. City Only	Total Cost to City	Asphalt Sq. Yd.	Contract Prices Concrete Cu. Yd.	Contract Prices Extra Bind. Cu. Yd.	Date of Final Payment	Guarantee Expires
llyn Street	Whole Length	Ed. Balf Co.	Sheet Asphalt	6,202.7	$8,058.74	$1.19	$6.35	$8.00	Jan. 9 1918	Jan. 9 1923
indsor Avenue	East side from about 200 feet north of Main Street P. C. to N. P. C. Canton Street.	Ed. Balf Co.	Sheet Asphalt	2,529.1	3,021.06	1.19	6.35	8.00	Jan. 9 1918	Jan. 9 1923
ain Street	Atheneum Street South to Pearl Street Both Tracks Dummy & Strips on outside Tracks.	Ed. Balf Co.	Sheet Asphalt		Cost paid by Conn. Co.	Cost Paid by Connecticut Company				
ratt Street	Whole Length	Ed. Balf Co.	Sheet Asphalt	1,497.2	4,425.99	1.19	6.00		Nov. 26 1917	Nov. 26 1922
Totals				10,229.0	$15,505.79					

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID.

Street	*Location*	*Asphalt Used*	*Year Laid*
Albany Avenue	South side, Lumber St. to East St.	Trinidad	1900
Albany Avenue	North side and tracks, Lumber St. to East St.	California (Atlas)	1909
Albany Avenue	Both sides and tracks, East St. to 50 feet East of Magnolia St.	Aztec (Mexican)	1914
Albany Avenue	Magnolia St. to Woodland St.	Aztec	1917
Albany Avenue	Woodland St. to Baltimore St.	Bermudez	1917
Allyn Street	Trumbull St. to Union Pl.	Bermudez	1899
Ann Street	Asylum St. to Allyn St.	Trinidad	1898
Ann Street	Allyn St. to Main St.	Bermudez	1917
Asylum Street	Main St. to Spruce St.	Bermudez	1908
Asylum Street	Strips on both sides, Spruce St. to Garden and Hopkins Sts.	Bermudez and California (Atlas)	1912
Asylum Street	Strip on north side, Garden St. westerly to header at macadam	Aztec (Mexican)	1914
Asylum Street	South side, Hopkins St. to Farmington Ave.	Bermudez and 5% California	1913
Atheneum Street	Prospect St. to Main St.	Trinidad	1896
Atheneum St. South	Main St. to Prospect St.	Aztec	1915
Broad Street	Bridge over Park River	Bermudez and 5% California	1914
Capitol Avenue	Both sides, Park River Bridge to Laurel St	Bermudez	1909
Capitol Avenue	North side, Hungerford St. to Lafayette St.	Bermudez	1910
Capitol Avenue	South side and south track, Broad St. to Lafayette St.	Bermudez	1911
Capitol Avenue	North track and dummy, 150 east of Oak St. to Lafayette St.	Bermudez	1911
Capitol Avenue	Both sides, Broad St. to Park River Bridge	Bermudez	1911
Capitol Avenue	Tracks, Park River Bridge to Laurel St.	California (Atlas)	1909
Capitol Avenue	North side, Hungerford St. to Broad St.	California (Atlas)	1910
Capitol Avenue	Park Terrace to Sigourney St.	Aztec	1916–1917
Capitol Avenue	Intersection at Lafayette St.	California (Atlas)	1911
Central Row	Main St. to Granite Block	Bermudez (small area California)	1909
Church Street	Main St. to Trumbull St.	California (Atlas)	1909
Church Street	Union Pl. to Spruce St.	Bermudez and 5% California	1913
Church Street	Intersection at Spruce St.	Trinidad and Bermudez, 50 and 50%	1913
Church Street	Trumbull St. to Union Place	Aztec	1916
Connecticut Boule'd	State St. to Ferry St.	Aztec	1916
Farmington Avenue	South track and dummy, Sigourney St. to Woodland St.	Bermudez	1909
Farmington Avenue	South side, south track and dummy, from 110 feet east of Tremont St. to 120 feet west of Beacon St.	Bermudez and Trinidad	1911
Farmington Avenue	North side and north track, from 110 feet east of Tremont St. to 140 feet west of Beacon St.	California and Bermudez	1911
Farmington Avenue	Woodland St. to 100 feet east of Tremont St.	Bermudez	1910

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Farmington Avenue	From 120 feet west of North Beacon St. and from 140 feet west of North Beacon St. to City Line, both sides	California (Atlas)	1911
Farmington Avenue	North track, Sigourney St. to Woodland St.	California (Atlas)	1909
Farmington Avenue	North and south sides, from Asylum to Woodland Sts.	Bermudez and 5% California (Atlas)	1913
Farmington Avenue	North and south tracks and dummy, from Sigourney St. to Asylum St.	Bermudez and 5% California (Atlas)	1913
Ferry Street	Front St. to foot of Hill.	Bermudez	1917
Ford Street	Asylum St. to Bridge over Park River	Bermudez	1908
Front Street	Potter St. to Sheldon St.	Bermudez and California	1912
Front Street	Potter St. to State St.	California (Acme)	1912
Front Street	Morgan St. to State St.	Bermudez and 5% California (Atlas)	1913
Front Street	Intersection at Talcott St.	Trinidad and Bermudez, 50 and 50%	1913
Gold Street	Main St. to Lewis St.	Trinidad	1898
Grove Street	Front St. to Prospect St.	California (Acme)	1912
Grove Street	Prospect St. to Main St.	Trinidad	1898
Hamilton Street	Bridge over Park River	Bermudez and 5% California	1914
High Street	Church St. to Main St.	Bermudez	1911
High Street	Asylum St. to south side of Allyn St., north side of Allyn St. to south side of Church Street	Bermudez and 5% California	1914
Hopkins Street	Broad St. to Asylum St.	Trinidad	1899
Kilbourn Street	Front St. to Charles St.	Bermudez	1917
Kinsley Street	Market St. to Main St.	Trinidad	1898
Lewis Street	Pearl St. to Gold St.	Trinidad	1900
Main Street	East side, Wyllys St. to 100 feet south of Charter Oak Ave.	Aztec (Mexican)	1914
Main Street	East side, from 140 feet north of. to 100 feet south of Charter Oak Ave.	Bermudez	1910
Main Street	East side from Sheldon St. to 140 feet north of Charter Oak Ave.	California (Obispo)	1910
Main Street	Width of tracks along east side of South Green	Aztec	1916
Main Street	Across south end of South Green	Aztec	1916
Main Street	Sheldon St. Intersection	Bermudez	1910
Main Street	East side, from 80 feet north of Arch St. to Sheldon St.	California (Obispo)	1910
Main Street	Engine House No. 1 to Buckingham St., tracks	Aztec	1916
Main Street	East side, Atheneum St. to 80 feet north of Arch St.	Bermudez	1910
Main Street	East side, Atheneum St. to 70 feet north of Grove St.	Bermudez and California (Atlas)	1912
Main Street	East side, Central Row to 70 feet north of Grove St.	Bermudez	1912
Main Street	Buckingham St. to Atheneum St., south, tracks resurfaced	Aztec	1916
Main Street	East side, Central Row to State St.	Trinidad	1896
Main Street	East side, from State St. to 100 feet north of Temple St.	Bermudez	1912
Main Street	East side, from 100 feet north of Temple St. to 50 feet north of Talcott St.	Bermudez and California (Atlas)	1912
Main Street	East side, Windsor St. to 50 feet north of Talcott St.	Bermudez	1912
Main Street	North side, Windsor St. to 120 feet east of Pleasant St.	California (Atlas)	1911

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Main Street	North side, Windsor Ave. to 120 feet east of Pleasant St.	Bermudez	1911
Main Street	West side, from Jefferson St. 80 feet north, and tracks 190 feet north	Bermudez	1912
Main Street	West side, Park St. to 80 feet north of Jefferson St.	Bermudez and Trinidad	1911
Main Street	West side, Park St. to Engine House No. 1	California (Atlas)	1912
Main Street	West side, Wells St. to Engine House No. 1	Bermudez	1910
Main Street	West side, Wells St. 180 feet south of Mulberry St.,	Bermudez and California (Atlas)	1912
Main Street	West side, from 270 feet south of Grove St. to 180 feet south of Mulberry	California (Acme)	1912
Main Street	West side, Grove St. 270 feet south	Bermudez	1912
Main Street	West side, Grove St. to Asylum St.	Bermudez and California (Acme)	1912
Main Street	West side, Asylum St. to 110 feet north of Church St.	Bermudez and California	1912
Main Street	South-west side, from 540 feet east of Ann St. to 110 feet north of Church	California (Atlas)	1912
Main Street	South side, from Ann St. 540 feet easterly	Bermudez and California (Atlas)	1912
Main Street	Triangle between tracks at Tunnel, including tracks and south side from east side of Ann St. west to Lumber St.	Aztec (Mexican)	1914
Main Street	Triangle between tracks at South Green	Bermudez and California (Atlas)	1912
Main Street	Tracks, Wyllys St. to north end of South Green	Bermudez	1908
Main Street	Tracks, Central Row to State St. and Pearl St. Intersection	Bermudez	1909
Main Street	Track work at Main St., State St. and Asylum St. Intersection	California (Atlas)	1909
Main Street	Tracks at Park St. to 190 feet north of Jefferson St.	California (Atlas)	1912
Main Street	West side, Wyllys St. to Park St. (East Section)	Trinidad	1897
Main Street	Atheneum St. South to Pearl St., tracks resurfaced.	Bermudez	1917
Maple Avenue	Congress St. to Morris St.	Aztec	1916
Market Street	West side, Morgan St. to State St.	California (Atlas)	1909
Market Street	Track, State St. to Morgan St.	Bermudez and 5% California	1914
Market Street	Morgan St. to Pleasant St.	Aztec (Mexican)	1914
Market Street	East side, State St. to Temple St.	Trinidad	1898
Market Street	East side, Temple St. to Morgan St.	Bermudez and 5% California	1914
Marsh Court	Village St. to Market St.	Bermudez and 5% California	1913
Morgan Street	Both sides and tracks, Market St. to Front St.	Bermudez and 5% California	1913
Mulberry Street	Main St. to Wells St.	Trinidad	1898
North Street	Windsor St. to Village St.	Bermudez	1917
Park Street	Main St. to Zion St.	Aztec	1916-1917
Park Street	Bridge over Park River	Bermudez	1912
Pearl Street	Tracks from Main St. to 150 feet west	Bermudez	1909
Pearl Street	Tracks, from 150 feet west of Main St. to Ford St.	Bermudez	1910
Pearl Street	Both sides, Main St. to Ford St.	Trinidad	1903

Pleasant Street	Winthrop St. to Main St.	Trinidad	1903
Pleasant Street	Windsor St. to Market St.	Trinidad	1913
Pleasant Street	Market St. to Railroad	Trinidad and Bermudez, 50 and 50%	1913
Pratt Street	Main St. to Trumbull St.	Bermudez	1917
Prospect Street	Central Row to Grove St.	California (Acme)	1912
Prospect Street	Grove St. to Atheneum St.	Trinidad	1898
Sequassen Street	Foot of Hill to Huyshope Ave.	Bermudez	1917
Sheldon Street	Union St. to Taylor St.	California (Acme)	1912
Sheldon Street	Main St. to 77 feet west of Union St.	California (Atlas)	1911
Sheldon Street	Main St. from 77 west of Union St. to Union St.	Texaco	1911
Sheldon Street	Taylor St. to Van Dyke Ave.	Bermudez	1917
Spruce Street	Asylum St. to Church St.	Trinidad	1900
State Street	Gutters, both sides, from Market St. to Front St.	Bermudez	1901
State Street	South side and track, from end of granite block west of Front St. to Connecticut Boulevard	Bermudez	1912
State Street	North side, track and dummy, from 220 feet east of granite block to Connecticut Boulevard	Bermudez and California (Acme)	1912
State Street	North side, track and dummy, from granite block 220 feet easterly	California (Acme)	1912
State Street	North side, granite block to Main St.	California (Atlas)	1909
Talcott Street	Gutters on both sides, Market St. to Main St.	Trinidad	1898
Talcott Street	Front St. to Market St.	Aztec (Mexican)	1914
Temple Street	Market St. to Main St.	Trinidad	1898
Temple Street	Front St. to Market St.	Bermudez and 5% California	1914
Trinity Street	East side and tracks, Capitol Ave. to Bridge	Bermudez	1908
Trinity Street	West side, Capitol Ave. to Ford St.	Aztec (Mexican)	1914
Trumbull Street	Asylum St. to Pearl St.	Texaco	1915
Trumbull Street	Asylum St. to Pratt St. and Church St. to Main St.	Trinidad	1898
Trumbull Street	Church St. to Pratt St.	Bermudez and 5% California	1914
Van Dyke Avenue	Sheldon St. to Masseek St.	Bermudez	1917
Village Street	Windsor St. north	Trinidad	1898
Village Street	City Park to Pleasant St.	Trinidad	1899
Village Street	Pleasant St. to North St.	Aztec	1915
Village Street	North St. to Avon St.	Texaco	1915
Wethersfield Ave.	Wyllys St. to Bond St.	Aztec	1915
Windsor Avenue	Tracks, Albany Ave. to Canton St.	Bermudez	1907
Windsor Avenue	Tracks, Canton St. to Capen St.	California (Atlas)	1910
Windsor Avenue	Capen St. to Westland St.	Bermudez	1917
Windsor Avenue	East side, Canton St. to Capen St., also west side, Mather St. to Capen St.	Trinidad	1899
Windsor Avenue	West side, Main St. to Mather St.	Aztec (Mexican)	1914
Windsor Avenue	East side, Main St. to Canton St.	Bermudez	1917
Windsor Street	City Park to Pleasant St.	Trinidad	1898
Windsor Street	Pleasant St. to Avon St.	Aztec (Mexican)	1914

TABLE SHOWING COST PER YARD FOR REPAIRS TO SHEET ASPHALT PAVEMENT ON TYPICAL STREETS OR SECTIONS OF STREETS FOR EACH YEAR AFTER THE EXPIRATION OF GUARANTEE TO APRIL 1, 1918.

Street	*Section*	*Yards City Only*	*Com-pleted*	*Years Guaranteed*	*Sixth Year*	*Seventh Year*	*Eighth Year*	*Ninth Year*	*Tenth Year*	*Eleventh Year*	*Twelfth Year*	*Thirteenth Year*	*Fourteenth Year*	*Fifteenth Year*	*Sixteenth Year*	*Seventeenth Year*	*Eighteenth Year*	*Nineteenth Year*
					$	$	$	$	$	$	$	$	$	$	$	$	$	$
Ann Street	Asylum St. to Allyn St.	1170	1898	5					.006		.005		.01	.01	.01			.002
Capitol Avenue	Sigourney St. to Laurel St.	2059	1909	5			.071											
Church Street	Main St. to Trumbull St.	1399	1909	5	.008		.018											
Farmington Ave.	Woodland St. to Tremont St.	8741	1910	5		.002												
Gold Street	Main St. to Lewis St.	1458	1898	5								.02	.02		.01	.006	.005	.027
Grove Street	Main St. to Prospect St.	913	1898	5					.04	.06	.06	.03	.12	.14	.07	.049	.078	.138
Hopkins Street	Broad St. to Asylum St.	3136	1899	5		.07	.09	.24	.12	.22	.17	.13	.07	.11	.067	.068	.058	
Kinsley Street	Main St. to Market St.	1037	1898	5						.09		.01			.01	.005	.003	.058
Lewis Street	Pearl St. to Gold St.	1085	1900	5						.01	.02		.01	.009		.00[illegible]		
Mulberry Street	Main St. to Wells St.	1299	1898	5		.02		.02	.04	.01		02	.03	.05	.07	.004	.015	.038
Pearl Street	Main St. to Ford St.	4581	1903	10						.03	.011	.092	.015					
Pleasant Street	Main St. to Winthrop St.	1010	1898	5	.01						.05	.01			.01	.016	.013	.024
Spruce Street	Asylum St. to Church St.	2286	1900	5				.002	.002	.01	.02	.05	.05	.051	.013	.03		
Temple Street	Main St. to Market St.	1052	1898	5	.003	.006					.01			.03	.001	.003	.01	.042
Trinity Street	E. side, Pearl St. to Capitol Ave.	2000	1908	5			.019	.028										
Village Street	City Park to Pleasant St.	1927	1899	5							.005	.03	.02	.01	.016	.039	.023	

Box
E
25

TWELFTH ANNUAL REPORT

OF THE

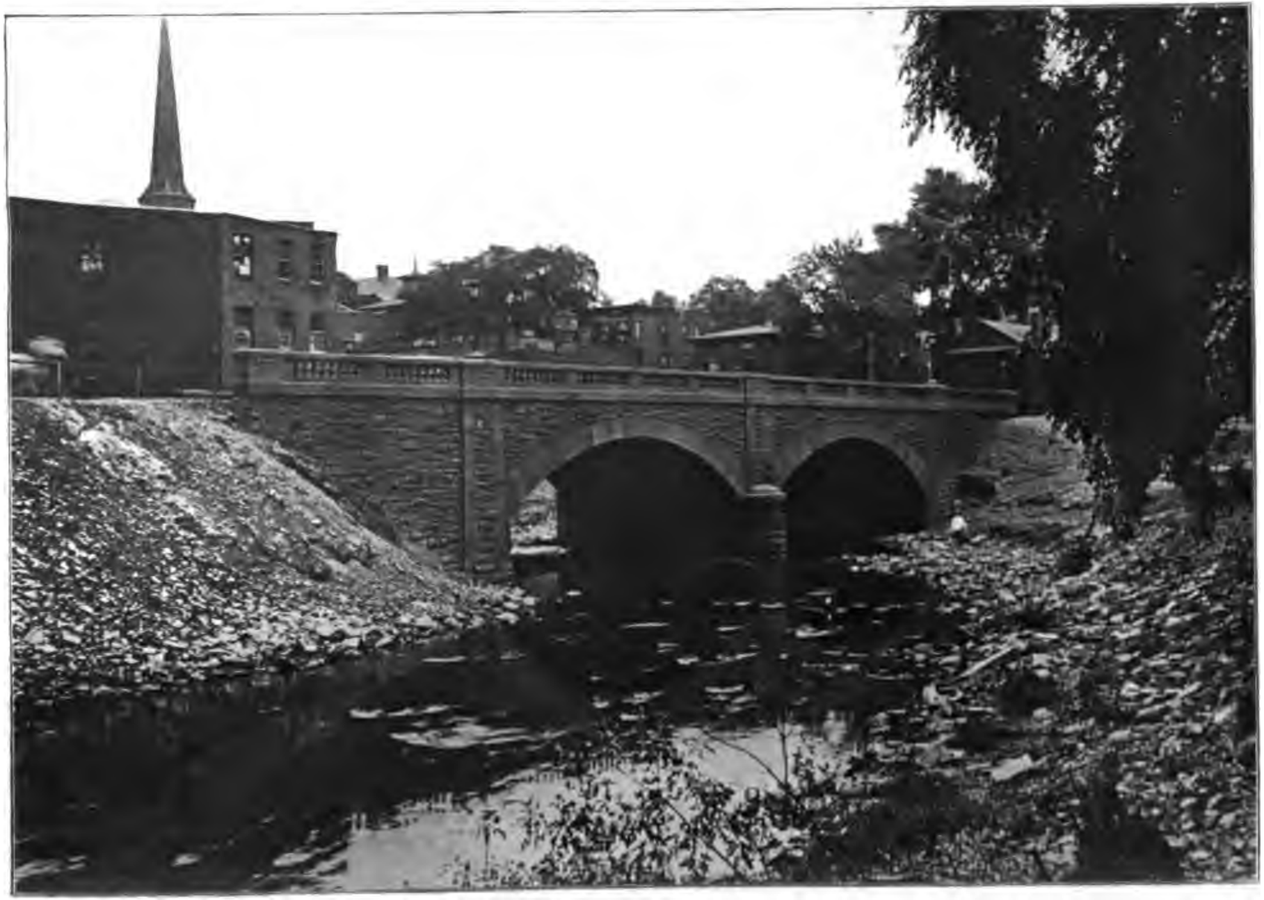
Department of Engineering

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1919



NEW BRIDGE OVER PARK RIVER AT HUDSON STREET.

TWELFTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

OF THE

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1919

THE BOND PRESS, INC.,
HARTFORD, CONN.

HARVARD UNIVERSITY
The Library of the Schools
of Landscape Architecture and City Planning

ORGANIZATION

ROSCOE N. CLARK, City Engineer.
ROBERT J. ROSS, Assistant City Engineer.
WILLARD S. BREWER, Division Engineer.
HERBERT G. CLARK, Division Engineer.
FRANK G. FLOOD, Chemist.
H. IRVING SKILTON, Division Engineer.
F. PERRY CLOSE, Division Engineer.
JOHN P. MURPHY, Assistant Engineer.
JOHN W. KNOX, Assistant Engineer.
ALDEN WELLS, Assistant Engineer.
GEORGE S. FRANCIS, Assistant Engineer.
CHARLES W. COOKE, Assistant Engineer.
EDWARD L. DONAGHUE, Inspector.
PAUL P. KIMBALL, Inspector.
JUDSON B. ROOT, Inspector.
RAYMOND W. SMITH, Inspector.
MERLE B. MANN, Inspector.
FLORENCE L. CHAPIN, Clerk.
LUCENE H. STETSON, Clerk.

GEORGE ANGELO,
AARON FIEN,
WILLIAM H. BRAINARD,
DANIEL R. MUIRHEAD,
RUSSELL C. STRUBELL,
ROBERT E. CROSS,
CLEMENT M. BRODERICK,
WINFRED DEMAY,
THOMAS ROWLAND,
WILLIAM H. DAVIS.

REPORT.

Hartford, Conn., May 29, 1919.

To his Honor the Mayor, and to the Honorable Court of Common Council of the City of Hartford, Connecticut.

Gentlemen:

I have the honor to submit the following report of the work of the Department of Engineering for the year ending March 31, 1919.

SEWERS AND BRIDGES.

Tables appended to this report give a list of all sewers laid during the past year, together with data concerning their construction and cost.

At the time the Intercepting Sewer was built the sewage from Elm Street was carried across the Park River to Wells Street by means of an inverted syphon. As a part of the improvements connected with the extension of Hudson Street, it is proposed to build a low dam across the river just east of the bridge and by enclosing a pipe line within this dam, it will be possible to secure for the sewer a crossing at grade in lieu of the existing syphon. With this in mind the sewers at the intersection of Elm and Hudson Streets were reconstructed (the overflow to the river, and the old sewers built in 1850 and 1857 were in bad condition and needed rebuilding), and a 15-inch tile sewer was laid to the southerly end of the proposed dam; also a new 15-inch line was laid from the Interceptor southerly to the river, a portion of it being underneath the old Daniels' Mill building, now owned by the City. The construction of this dam and pipe line will complete this work.

Although the Hudson Street work will eliminate one inverted syphon, the task of providing the Connecticut Electric Steel Company with sewer facilities made it necessary to build another across the southerly branch of the Park River at Flatbush Avenue.

More trouble was experienced with the Intercepting Sewer north of Park Street, where it is very close to the west bank of the Park River. This section of the sewer was built in shallow cut, but the land has since been filled in by the owners to a depth of from ten to fifteen feet. In 1912 a portion of the sewer, about 300 feet long from Park Street northerly, slipped laterally towards the river, the amount of movement varying from a few inches to a maximum of three feet. It was rebuilt in that year of reinforced concrete, and 3-inch sheet piling was driven on each side to a depth of 9 feet below the bottom of the sewer. During the early part of this year it was found that another section of about the same length and lying just north of the section rebuilt in 1912 had become displaced in a similar manner. This was rebuilt during the summer, of reinforced concrete, on two lines of timber piles fifteen feet in length spaced about two and one-half feet apart, the outer line being battered towards the river to take the thrust of the bank.

During the winter considerable work has been done in locating those old sewers of which there are no maps, and the plotting on new maps of the information thus obtained together with such other information as may be obtained from office records. A start has also been made towards locating all catch basins and plotting them on the sewer maps. Blue Hills Avenue and side streets and Albany Avenue and cross streets west of Vine Street are now completed.

In order to obtain data regarding the run-off in sewers during storms, two Sanborn automatic flow recorders were purchased and placed in operation on August 1, 1918, in the Tremont Street conduit. A graphic record of the depth of flow in the sewer is produced on a graduated chart. It is hoped by this means to obtain definite information as to the overloading of sewers and storm conduits in hard storms as well as the amount of run-off for new sewer design.

Preliminary surveys and studies have been made for the extension of the Gully Brook branch of the Interceptor from Westland Street to the city line, and some more work is necessary on these plans during the coming year. It is also expected to prepare designs for an extension of the interceptor in Granby Street northerly from Uphill Street and for branches in the side streets as far as the city line.

At the opening of the season work was resumed on the Prospect Street and Hudson Street bridges, the construction of which was begun late in 1917. The completion of the former involved the placing of the floor system for the south span, and the parapet railing over the bridge, both of which are of reinforced concrete, the construction of retaining walls and laying the asphalt roadway surface. This work was completed July 3, 1918, and the bridge opened to traffic the following day.

On the Hudson Street bridge only the south abutment, pier, and foundation for the north abutment had been built in 1917. Work was resumed on April 1 and the entire bridge completed December 5. The filling of the approaches was completed and traffic allowed to cross on the following day.

In both of those bridges provision was made for future needs of the public service corporations. The Hartford Electric Light Company laid duct lines beneath the roadway, and the Water Department laid 16-inch pipe lines beneath the sidewalk of both bridges, while the Southern New England Telephone Company placed a conduit below the west walk of the Hudson Street bridge.

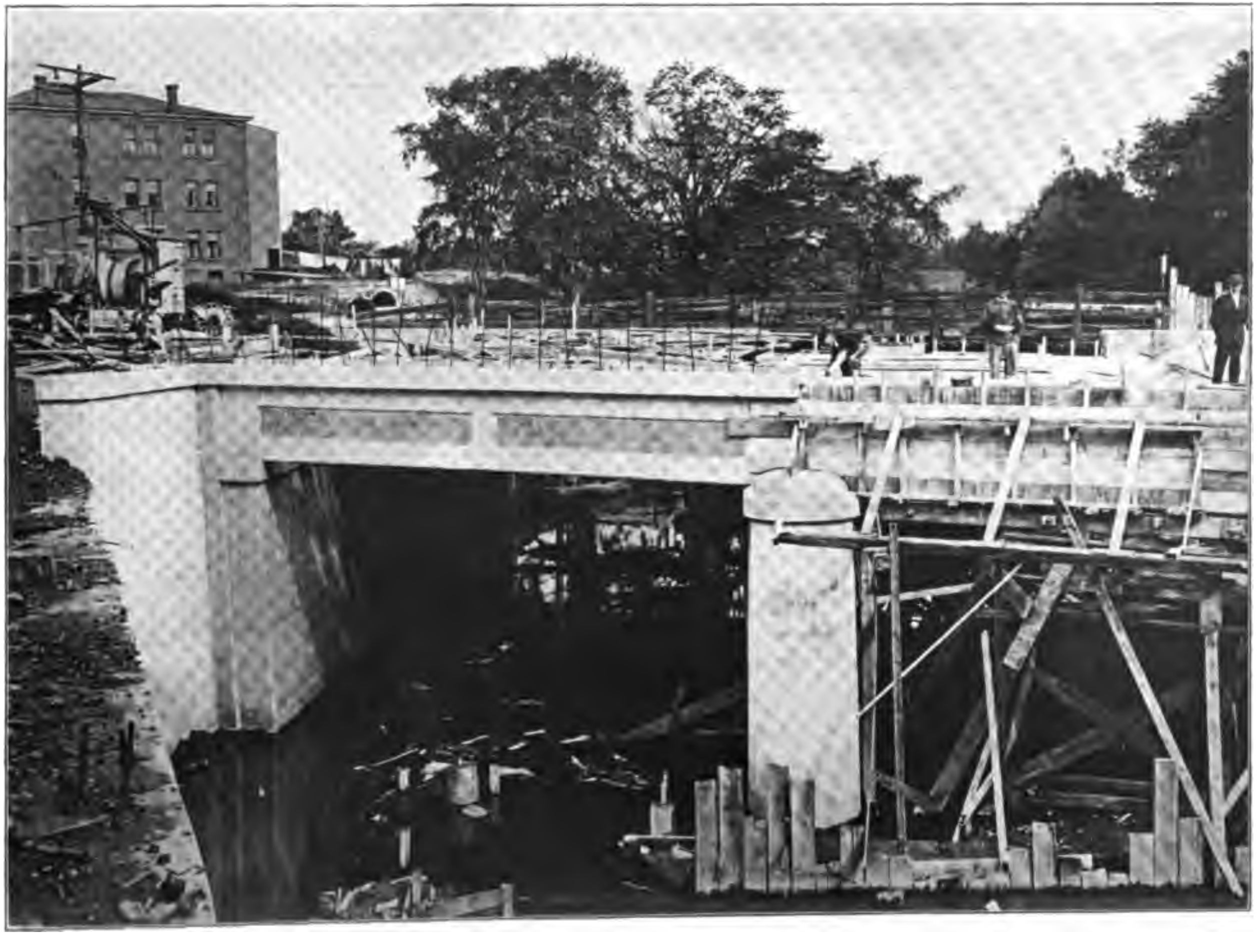
On April 2 bids were received for the construction of a two-span reinforced concrete bridge across the north branch of the Park River at Capitol Avenue Extension, and the contract awarded to C. H. Slocomb. Excavation was begun on May 6 and at the end of the year the abutments and pier had been completed and everything made ready to start the floor system. In the foundation of this bridge 566 timber piles, varying in length from 33 feet to 42 feet, were driven. This bridge should be completed in the early summer.

Preliminary designs and estimates of cost were made for an overhead crossing and for a subway under the railroad tracks from North Front Street to Riverside Park for pedestrian travel to and from the Park. This improvement would obviate the necessity of crossing the tracks at grade at Pleasant Street, as is now done by people in this vicinity to avoid the long walk to Morgan Street and back up the river road. The subway design is by far the better and it should be built as soon as funds are available.

PAVING.

PERMANENT PAVEMENTS.

Although there was much opposition by the property owners on Windsor Avenue between Westland Street and the city line to the laying of permanent pavement, this work was decided on by the Board of Street Commissioners and the necessary money for an asphalt pavement appropriated. Unfortunately, due to war conditions and to its critical financial condition, the Connecticut Company was unable to obtain new rails for the renewing of track in the section named. It was deemed advisable, therefore, to build a concrete header about two feet outside the outer rail on each side and pave the remainder of the roadway between this header and the curb. Before the paving work was undertaken, new concrete curb was laid on both sides from Earle Street to the city line, this work being performed under one contract by the City, and the cost later assessed against the properties benefited. It was necessary also for the tracks to be adjusted to a center line



BRIDGE UNDER CONSTRUCTION OVER PARK RIVER AT CAPITOL AVENUE EXTENSION.

location, involving a change of as much as ten feet at the maximum, the distance along the street affected being about half the length of the section to be paved, or about 2800 feet. Duct lines were also installed by the Connecticut Company in several sections, and by the Hartford Electric Light Company from Earle Street to the city line; new water mains from Cleveland Avenue to Ashford Street; new gas main from Westland Street to Cleveland Avenue; and all existing underground structures were repaired where necessary. All this preliminary work, since it caused more or less inconvenience to the users of the roadway and annoyance to the residents, resulted in considerable criticism. The operations involved, however, were of such a character that all could not be carried on simultaneously. Under the conditions and the necessity of keeping one side of the roadway open for traffic, it was impossible to carry on the work without some inconvenience, which in relation to the size of the undertaking was inconsiderable. This pavement was completed in the first week of December. The roadway, however, with the track area unpaved has an unfinished appearance, and it is hoped that at an early date the Connecticut Company will be able to get the necessary rails and be financially in a position to install new track construction and complete the paving of the roadway.

Portland Street was paved with sheet asphalt, a much needed improvement for sanitary reasons.

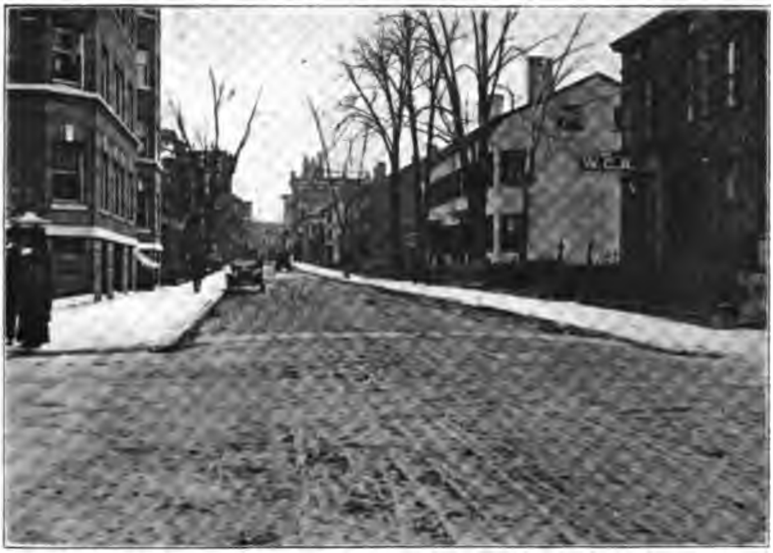
Huyshope Avenue from Charter Oak Avenue to Masseek Street was to have been paved during 1917 with sheet asphalt, but owing to the late start made by the Connecticut Company on its track work, the City was unable to take up its work before cold weather set in. This paving was completed during the early summer of 1918.

Cold weather in December, 1917, also interfered with the completion of the paving of Windsor Avenue from Capen Street to Westland Street. The laying of asphalt on the east side from Engine House No. 7 to Westland Street completed this work in May 1918.

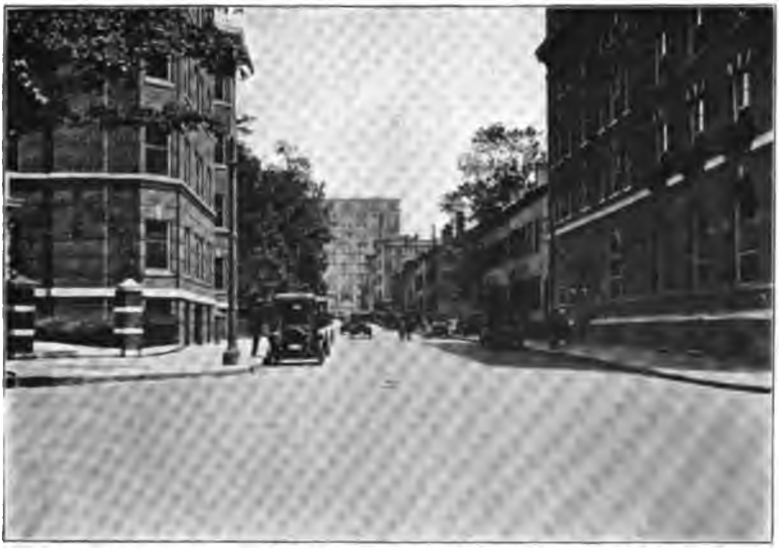
During 1918 an asphalt pavement on a roadway 40 feet in width was laid on the newly completed bridges over the Park River at Hudson Street and Prospect Street.

The final passage of the Church Street widening was authorized during the early spring of 1918 and the changes to the abutting buildings were started soon thereafter. The changes in width by blocks were as follows: Main to Trumbull, street widened 15 feet, from 35 feet to 50 feet, roadway widened 11 feet from 22 feet to 33 feet; Trumbull Street to High Street, street widened 10 feet, from 45 feet to 55 feet; roadway widened 8 feet, from 27 feet to 35 feet; High Street to railroad bridge, street widened 15 feet, from 40 feet to 55 feet, roadway widened 12.5 feet, from 25 feet to 37.5 feet. Sidewalk grades were given for all structual changes to buildings, and lines and grade for the resetting of the curb. On order of the Board of Street Commissioners new concrete walks were laid, replacing the old unsatisfactory flagging, and in the block between Main and Trumbull new ornamental lamp standards were installed. All changes to buildings, curbs, walks and paving were completed between Main and Trumbull, and between High Street and the railroad bridge, and the paving extended in the sections between Trumbull Street and High Street where the curbs had been set back. This street has been greatly improved, not only as regards increased room for both vehicular and pedestrian traffic, but also from an aesthetic standpoint, the new store fronts and new concrete sidewalks together with the wider roadway giving a greatly improved appearance. The widening between Trumbull Street and High Street will be completed during the spring of 1919.

Proceedings looking to the widening of High Street were begun in 1912, but litigation over award of damages for land taken held up the final passage of the new layout until 1917. Eleven feet were added to the street on its west side, making the street 51 feet wide from Church Street to Main Street. During the summer of 1918 the west curb was set back about 12 feet, making the new roadway width 36 feet, and the additional space paved with an extension of the sheet asphalt pavement.



CHURCH STREET AT ANN STREET.
Before Paving.



CHURCH STREET.
Showing New Sheet Asphalt Pavement.

In connection with the paving of Portland Street the City reset the curbs and walks, letting this work in one contract. The resetting of curb on Windsor Avenue from Westland Street to Earle Street was also included under the same contract, as was also the furnishing and setting of new radius curbs and headers at street intersections. As mentioned above, the curbs on Windsor Avenue north of Earle Street were built of concrete, the total amount of about 9000 feet being let in one contract by the City.

There are now 458,815 square yards of permanent pavement, covering a length of 19.06 miles of streets within the city of Hartford, an amount which is very small in proportion to the total mileage of all streets, which approximates 166 miles. The City should, as soon as prices of materials and labor permit, take full advantage of its right to lay annually four miles of permanent pavement to replace the extremely unsatisfactory macadam. This area includes the Connecticut Company's track space plus 2 feet outside the outer rails, a total estimated at 119,000 square yards.

Total permanent pavement laid in Hartford during 1918 was 36,658.3 square yards; total cost to City and property owners being $136,205.30.

Tables containing statistics on Hartford's pavements are appended to this report.

PAVING REPAIRS.

During the past year $5,203.88 was expended for repairs by the City on paved streets. This amount proportioned over the 339,814.72 square yards of such pavements which existed on March 31, 1918, and for the maintenance of which the City is responsible, gives one and two-tenths cents as the average repair cost per square yard for the year. This cost includes also repairs made in granite block pavements, but does not include any costs borne by the street railroad company.

Paving Proposed for 1919.

War conditions have again had their effect on the amount of paving to be laid during 1919, prices for labor and materials being still very high, making the assessment against abutting property also very high, and causing much objections by the property owners because of the heavy expense to them. About one and one-half miles of permanent pavement will be laid the coming season on the following streets:

Morgan Street, Conn. Boulevard to Bridge, sheet asphalt.

Morgan Street Connecticut Boulevard to Front Street, granite block.

Jewell, Trumbull and Wells Streets, Ford Street to Main Street, sheet asphalt.

Prospect Street from Grove Street to Atheneum Street will be resurfaced with sheet asphalt, and the paving of Church Street for its added width will be completed between Trumbull Street and High Street.

Long Radius Curbs.

In connection with the relaying of curbs on Portland Street, High Street and Windsor Avenue and the laying of concrete curb on Windsor Avenue, long radius curbing was installed on the following corners:

Portland Street, S. E. and S. W. corners of Avon Street.

High Street, S. W. and N. W. corners of Foot Guard Place.

Walnut Street, Atlantic Street and at the S. W. corner of Albany Avenue.

Windsor Avenue at both corners of Kensington, Windsor, Montville, Fishfry, Rosemont and Ashford Streets, Tower Avenue and at the angle in the west street line of Windsor Street near Windsor Avenue.

TRACK WORK.

Profiles for track work on Huyshope Avenue and on Windsor Avenue were furnished The Connecticut Company. The old track on Huyshope Avenue was adjusted to new line and grade preceding the paving of that street, and in connection with this work the new special work and double tracks at the intersection of and extending into

Charter Oak Avenue, were brought to a new grade. This special track work was installed in the first part of December, 1917.

On Windsor Avenue sections of old track were moved to a center line location from Earle Street to Windsor Street and from Cleveland Avenue to Ashford Street. The movement necessary in this change was in some instances as great as ten feet. Where such changes in track location were made the concrete foundation used in standard track construction was laid. The old rails were then set to new line and grade, but were in such poor condition that by arrangement with the Board of Street Commissioners permanent pavement was temporarily omitted, and macadam was laid instead. Single track on a side location at the city line at Windsor was removed and double tracks on a center line location substituted therefor. Double tracks now extend to the city line, the change from a center line to side location and to a single track construction being made beyond the city line.

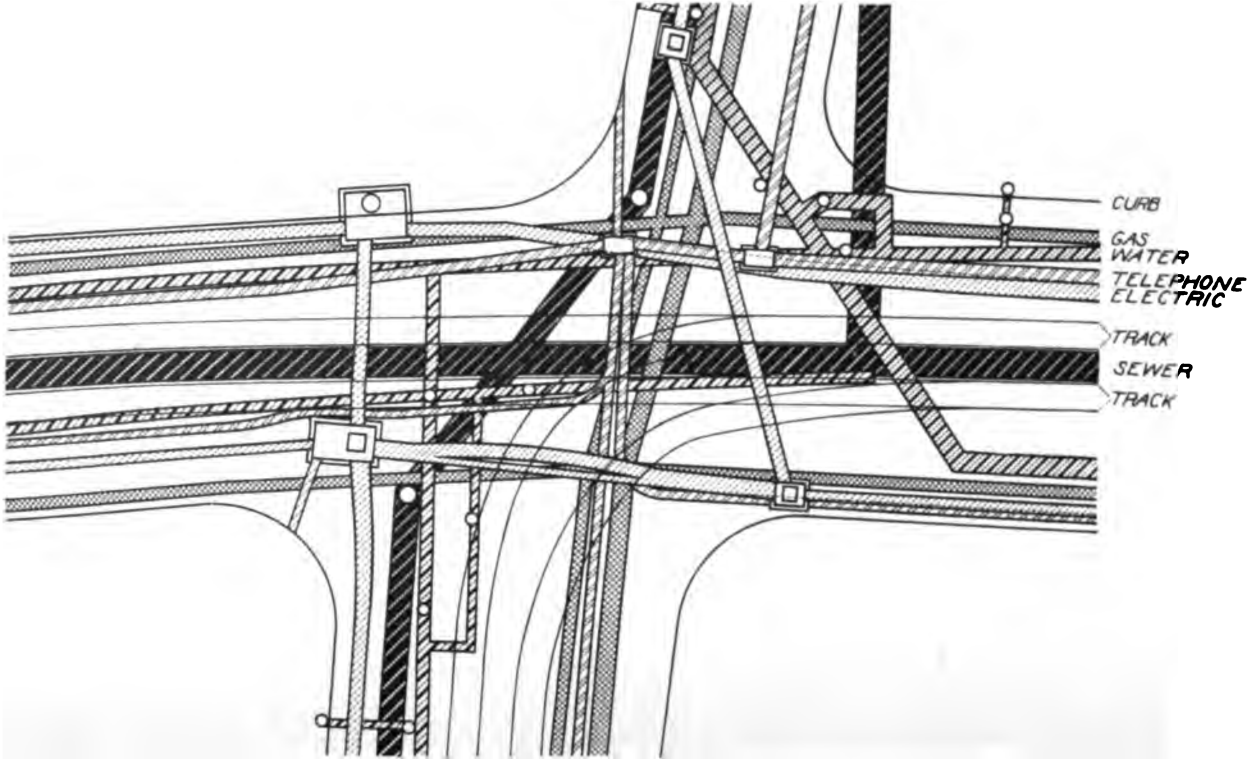
Special track work was installed at the intersection of State and Market Streets.

UNDERGROUND SYSTEM.

High prices of materials and scarcity of labor were important factors affecting the yardage of pavement laid during the year. This fact necessarily made the season's underground construction less than that for the previous year. Another reason for the decrease in the amount of underground work was the fact that in Windsor Avenue, from Westland Street to the city line, the largest piece of pavement laid during the season, over half of the underground structures had been laid the previous season. This condition was one, however, that seldom obtains on streets to be paved, that is: in having any appreciable part of the necessary duct line work installed during the previous season, thus enabling the back-fill in trenches to settle thoroughly. Paving conditions would be much better, however, if this was more often the case. Not only would the paving work be carried on in streets whose underground trenches had had a year to settle, but paving work could be commenced much earlier, doing away with the necessary wait for underground work to be completed. However, it is extremely improbable that this will ever be the case under present conditions, with the City being allowed to lay four miles of improved pavement each year and being able to order only two miles of underground work done by each public service corporation. When construction and business conditions return to normal, the City should have authority to order more than two miles of underground structures installed per year by each corporation. Enough work should be ordered each year not only to keep up with the four miles of improved pavement which can be laid, but to gradually gain on it, so that in a few years practically all underground construction would be completed a year prior to paving.

During the past season 6.1 miles of gas and water mains, and two miles of duct lines were installed, for which 71 underground locations were assigned; the total work being distributed over 49 streets. At the present time the Hartford underground system comprises 158 miles of water mains, 152 miles of gas mains, 96 miles of duct lines and 151.5 miles of sewers.

To solve problems of underground locations in an efficient manner a set of 196 maps to a scale of 20 feet to an inch has been made to date, showing probable positions of underground structures. These maps show all sewers, water mains, gas mains, duct lines, curbs and street railway tracks. The underground construction is shown by colored inks, a special color for each type of construction. These maps are drawn on tracing cloth. A card catalog system giving the street, company, location and size of pipe or duct and the date the location was assigned, simplifies the work and a separate letter file of the underground correspondence with the different corporations gives a ready reference to assigned locations. A great many locations are assigned in outlying streets, for which no underground maps exist. These are assigned according to a definite



TYPICAL ILLUSTRATION OF THE COMPLEXITY OF ARRANGEMENT OF UNDERGROUND STRUCTURES IN OUR CITY STREETS.

system which determines the positions of the structures of the several public service corporations in their relation to each other and to the curb lines on the streets.

About 30 new maps were made during the past season and all maps previously made were brought up to date. Maps were made of streets to be paved and locations assigned for new work as early as possible to allow the backfill in the trenches to settle as long as possible before the concrete base for the new pavement should be laid.

The cut showing typical underground conditions in a down-town street shows clearly the results of not regulating the positions of underground structures. With but one exception, all the underground construction shown in this cut was installed prior to any attempt on the City's part to regulate or exercise any appreciable control over subsurface work. The resultant random positions of structures in this intersection, and there are many others in the same condition, make it extremely difficult to assign locations for new work. If all these structures had been assigned locations according to present methods a great deal more space would be available for enlargements and for a probable high pressure water system for fire protection, or any other future installation.

SURVEYS.

MERESTONES.

Sixty concrete merestones were made at the City yard; forty-seven were set in new locations and three were reset to a new grade.

NEW STREETS.

Layouts were prepared for the acceptance of Wilmath Street, Darien Street and Bedford Street.

NEW STREET, BUILDING AND VERANDA LINES.

A new layout was made of Summit Street from Vernon Street to New Britain Avenue.

New building and veranda lines were established on parts of White, Babcock, Loomis and Roger Streets.

A new grade was established on George Street from South Street southerly 750 feet.

SIDEWALK AND CURB LINES.

New sidewalk or curb lines were established on parts of Nelson Street, Hudson Street, Otis Street and Prospect Street.

PARK DEPARTMENT.

During the winter months the topographical survey of the North Woods Cemetery was completed.

Line and grade was set for the new dance pavilion at Colt Park and for other park work.

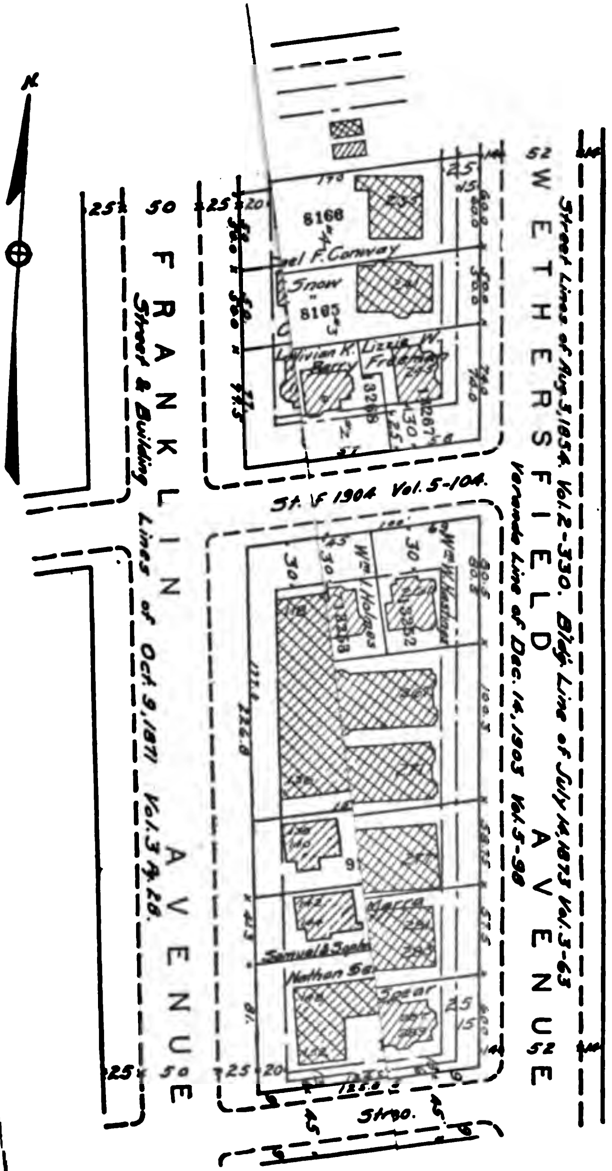
Surveys and grading plans were made for the Public Buildings Commission for grading near the public dock on the river front north of State Street.

Surveys were made of the City property west of the Connecticut Boulevard for the public market and bath house.

OFFICE DIVISION.

PROPERTY MAPS.

On another page of this report is shown a cut illustrating a section of a typical property map. Mention has been made in former reports of this set of property maps of the city. It consists of one hundred and thirty-eight plans or maps covering as many sections of the city's area. These maps are in constant use not only by this office but by other City departments and by the public in general. In connection with the work of making out assessments for public improvements alone they justify the time and effort which it is found necessary to devote to their upkeep. These maps are kept constantly up to date in respect to realty ownership, new streets, real estate developments and any changes affecting old streets. From time to time


N
WETHERSFIELD AVENUE
Street Lines of Aug 3, 1854. Vol. 2-330. Bldg. Line of July 14, 1873 Vol. 3-63
Veranda Line of Dec. 14, 1905 Vol. 5-98
FRANKLIN AVENUE
Street & Building Lines of Oct. 9, 1871 Vol. 3 p. 28.
St. L. 1904 Vol. 5-104.
8168
F. Conway
Snow
8165
Vivian K. Berry
Lizzie W. Freeman
3268
3267
Wm W. Hastings
Wm J. Hodges
3253
3252
Marra
Samuel & Sophie
Nathan Sa
Spear
52
50
25
20

all new buildings are plotted upon the maps and they are made complete in this respect on each October 1. These maps indicate the ownership, size and location of every parcel of real estate in the city, curb, street, building and veranda lines with their date of acceptance by the Council, the width of every street, all buildings which have a taxable valuation, all house numbers issued by this department and all deed frontages, as well as frontages which have been determined from surveys.

The series number found on each property refers to the card index maintained by the department wherein is recorded every real estate transaction which has taken place in the city during the past eighteen years. A reference to the card will disclose the date of recording, the volume number and page number where a copy of the deed may be found in the Town Clerk's office, and a description of the property.

The real estate transfers for the past year indicate that conditions were as favorable in this line of business as during the previous year. Twenty-nine hundred and forty transfers were taken from the Town Clerk's records, posted on our property maps and sprinkling book and filed in our card system. This shows an increase of 80 transfers over the previous year.

In connection with the card system, 60 deeds were looked up for old plots of land on which transfers have not been recorded since the index was started in 1901.

New street layouts, and various parcels of land owned by the City have required the usual amount of title searching, as well as the verification of ownerships on all assessments.

A complete set of property maps, comprising 138 sections, was made up for the Board of Assessors. These were delivered to them on November 1.

The new buildings located and plotted on these maps numbered four hundred and eighty-six. This being 50% less than the previous year.

Two new tracings were made for this set of maps, and twenty new property maps were made for office use.

HOUSE NUMBERS.

House numbering plans were made for the following streets, which were either numbered or renumbered: Arbor, Blake, Charles, Cornwall, Darien, Douglas, Judson, Martin, Olive, Orchard, Pleasant and Talcott Streets and Huntley Avenue.

Fourteen real estate sub-division plans filed with the Town Clerk were transcribed on the map book in his office, used in connection with the land records.

The extreme slackness that has prevailed in building operations is clearly shown by the fact that only 166 building lines were staked during the season, as compared with the five hundred to eight hundred during normal times.

Under what may be termed general office work, 202 house number cards were issued, 302 drainlayers' permits given out, 299 liens were described for the Street Department and 245 miscellaneous orders for work were received and attended to, and most of the request for information by other departments, and the public, were handled by this division.

STREET SPRINKLING.

Since 1899 it has been the custom to assess for street sprinkling, or oiling, as the case may be, against the property fronting on the streets so treated.

In 1899, 44.37 miles of streets were treated at a cost of $20,886.17. Last year 111.28 miles of streets were treated at a cost of $69,428.62.

The following table will clearly illustrate the growth and extent of this assessment:

Year	Miles Sprinkled	Cost	Cost per Mile	Rate per Foot
1899	44.37	$20,886.17	$470.73	$0.04 to .05
1900	47.40	26,368.84	556.30	.0475 to .0675
1901	46.75	22,912.05	490.09	.046 to .06
1902	48.20	23,574.94	489.10	.046 to .06
1903	49.78	24,424.88	490.56	.046 to .06
1904	50.64	24,937.30	492.44	.046 to .06

Year	Miles Sprinkled	Cost	Cost per Mile	Rate per Foot
1905	51.07	25,149.56	492.45	.03 or .046
1906	52.72	17,696.37	335.66	.03 or .046
1907	54.57	19,323.62	354.11	.03 or .046
1908	56.77	19,568.37	344.70	.03 or .046
1909	58.03	19,966.96	344.08	.027 or .048
1910	61.48	21,039.09	342.21	.03 or .04
1911	73.48	34,611.58	471.03	.032 or .04
1912	79.48	34,818.66	438.08	.032 or .04
1913	93.38	34,828.20	372.97	.032 or .04
1914	99.38	39,992.54	402.42	.032 or .04
1915	101.72	37,282.03	366.52	.042 or .05
1916	105.43	48,880.07	463.62	.042 or .05
1917	108.83	54,260.64	498.58	.042 or .05
1918	111.28	69,428.62	623.90	.045 or .06

At this date there are approximately 166 miles of streets in the city. Of this amount about 39 miles are undeveloped and not macadamized, leaving a total of 127 miles of improved streets. A glance at the tables will indicate the proportion of property not affected by sprinkling.

I believe that the cost of street sprinkling should be met out of the general tax rather than by special assessment as at present.

The past year 111 miles of streets were either flushed, sprinkled or oiled, and to prepare the assessment it was necessary to ascertain the names of the owners of all the property on the streets, as well as the exact frontages and the addresses to which the bills were to be sent. Since both sides of the streets were assessed, it meant 222 miles of frontages, involving over seventeen thousand separate owners.

This assessment as prepared by this department filled seven hundred legal cap typewritten pages. From the prepared assessment the Street Department clerks make out the individual bills, place them in envelopes and mail them and the tax collector's office collects the amounts due thereunder. Three departments are concerned in the preparation and collecting of these thousands of bills and it is evident that the cost to the City is considerable and, it appears, unnecessary.

It is commonly considered that the sprinkling or oiling of streets is solely for the purpose of dust suppression, but such is not the case. The advantage in comfort and health to the community through the suppression of dust is obvious, but a very material benefit not generally appreciated, but of considerable economic value, lies in the protection and preservation which this treatment affords to the macadam road surfaces. At the present time it is the practice to substitute oil for water on many streets, although this is classed and assessed as street sprinkling. The application of this oil, and especially if it is accompanied by a treatment of sand or other similar material, often saves expensive resurfacing with crushed stone and always forms a mat which protects the surface of the roadway.

It has never been the practice to assess for resurfacing or repairs to macadam streets, and inasmuch as oiling a street may very properly be considered as maintenance, the cost thereof may properly be paid out of the general tax, as all other maintenance work is financed.

If such a plan were adopted it would undoubtedly be found necessary to extend the sprinkling list to include all streets having improved roadways. This should be done in any event, no matter how the cost is assessed. Only the objection of property owners is sparsely built up streets serve, as a rule, to deprive such streets of this very necessary treatment in the interest of the preservation of the road surface. Such objection is invariably based on disinclination to pay the assessment.

The entire cost of such sprinkling, assuming the same to be proportionate to amount and distance sprinkled in 1918, would be about $79,000, or approximately one-half mill on the grand list of this year.

PRIVATE DRAINS.

The supervision of the laying of private drains has been one of the duties of the City Engineer for the past sixteen years. During this period there has been issued to drainlayers 8,612 permits for connecting and repairing drains, making a yearly average of 538 permits.

There were 32 licenses issued last year to drainlayers for the laying of private drains, in accord with the ordinances of the City and the rules and regulations of the Board of Street Commissioners. These drainlayers can be divided into three classes, viz: first, contractors who do drain work only; second, plumbers, who in connection with their work need a drainlayer's license; third, Public Service Corporations and general contractors who, wishing to save time and labor, have taken out licenses to do this incidental work themselves.

During the past year 265 permits were issued to various drainlayers. This is substantially half of the number of permits issued the year previous. Of this number, 62 permits were issued for relaying and repairing old or existing drains, 141 permits were issued for new drains of all sizes from 4-inch tile to 15-inch tile. The Public Service Corporations took out 44 permits to drain their manholes, divided as follows: 22 by The Hartford Electric Light Company, 17 by The Southern New England Telephone Company, and 5 by The Connecticut Company. To the Water Board were issued 18 permits, 14 were for hydrant drains and 4 were for blow-offs.

Under the head of new connections, permits were issued for the laying of a new sewer and extension of this sewer in Garden Street, north of Westland Street, also an extension of the Fales Street Sewer, and extension of the Nook Farm Sewer overflow, in rear of Willow Street to new channel of Park River.

On many of the older streets of the city there is very little information concerning sewer connections. When calls for inspecting repairs on them come into the office, and drainlayers uncover connections, a record is made showing location of sewer and connection, which information is properly filed and thereafter available.

STREET DEPARTMENT REPAIR SHOP.

In August, 1917, The Hartford Electric Light Company asked that the City exchange the land on Sheldon Street then used by the Street Department as a storeyard and repair shop, for a larger piece of land on Van Block Avenue, then owned by the former company. This last lot was situated between Colt Park and the building of the Church of the Good Shepherd. The Electric Light Company offered to bear all the expense of moving the buildings then in the old yard to the new site and of erecting them there. After proper study the Board of Street Commissioners decided in favor of the exchange and the transfer was authorized by the Common Council. Various causes delayed the final closing of the exchange and the work of actually moving the buildings was not undertaken until the fall of 1918.

The buildings in the old yard consisted of a two-story brick building used as a repair shop, a brick wagon shed and six one-story frame storage buildings. Study of the possible layouts of the new yard led the Board to determine to erect a new main building there to replace the old repair shop and two of the old frame buildings. This would allow the location of the machine shop on the ground floor, give more space for work and in other ways would be better suited to their needs. The Electric Light Company agreed to erect these buildings for the City at cost and to allow the City credit for the buildings left standing on the old site. Plans and specifications for the new building to be 186 feet long by 39 feet wide, with an ell 86 feet by 25 feet, were prepared by this Department upon request of the Board. Owing to the high cost of building during the war it was later deemed advisable to omit the ell. The new building is of brick, one story high, except a small part at the south end. It contains the storekeeper's room used as an office, a storeroom for small supplies, a boiler room, a machine shop 60 feet 8 inches by 32 feet 8 inches, a blacksmith shop and a room 74 feet by 32 feet with pits, etc., for the storage and repair of six road rollers, and which at present is used also as a garage. The accommodations for the care of the Street Department's varied equipment here are more commodious and convenient than in the old location. The machine shop was formerly on the second floor and quite crowded. It is now on the ground floor, where it is possible to run wagons, trucks, etc., directly into it. At the Sheldon Street yard the roller room would accommodate only four rollers, two others being stored in the frame sheds. At the new shop all six can be very easily placed in the one room with ample space around them for work.

The J. H. Grozier Company began work on the new plant September 4, 1918, and on November 29 the machinery was running in the new shop. The entire plant was complete soon after. The contract price for the main building was $23,264 toward which the Electric Light Company allowed the City $7,973 for the buildings left standing at the old yard. These prices do not include the cost of moving the brick shed and four frame buildings from the old location to the new, or of fences, grading, yard lights, etc.

In addition to designing the new main building this Department supervised its construction and assisted in supervising the erection of the brick shed and four frame buildings removed from the old yard, marked out the fences, grading, etc., of the new yard and in various ways coöperated with the Street Department.

TESTING LABORATORY.

During the year the various tests on municipal supplies, such as coal, asphalt, asphaltic mixtures, fluxes, road oils, cement, sand, gravel, brick, rubber fire hose, insulated wire, joint fillers, soap, cylinder oils, lubricants, greases, gasoline and tree spraying compounds were made in this

Department. In several instances the tests showed that the article under examination was of an inferior quality and not up to the requirements specified by the City. In such cases the proper official for whom the test was made was promptly notified, so that the inferior article could be rejected or adjustments made. As usual the greatest number were made on asphalt for plant control. Besides the unusual routine work some investigation work on concrete sands was undertaken As a rule engineers require that cement for concrete work be rigidly inspected. Usually the subject of sand testing is dismissed with a general requirement providing that the sand must be clean, sharp, and free from loam. The quality of sand is, as a rule judged by the eye and touch. It is not to be wondered at, in such cases, that the work may be of a distinctly inferior quality and sometimes is a disastrous failure.

The following are the most customary tests made on sands:

(1) Determination of percentage of voids.

(2) Granulometric analysis.

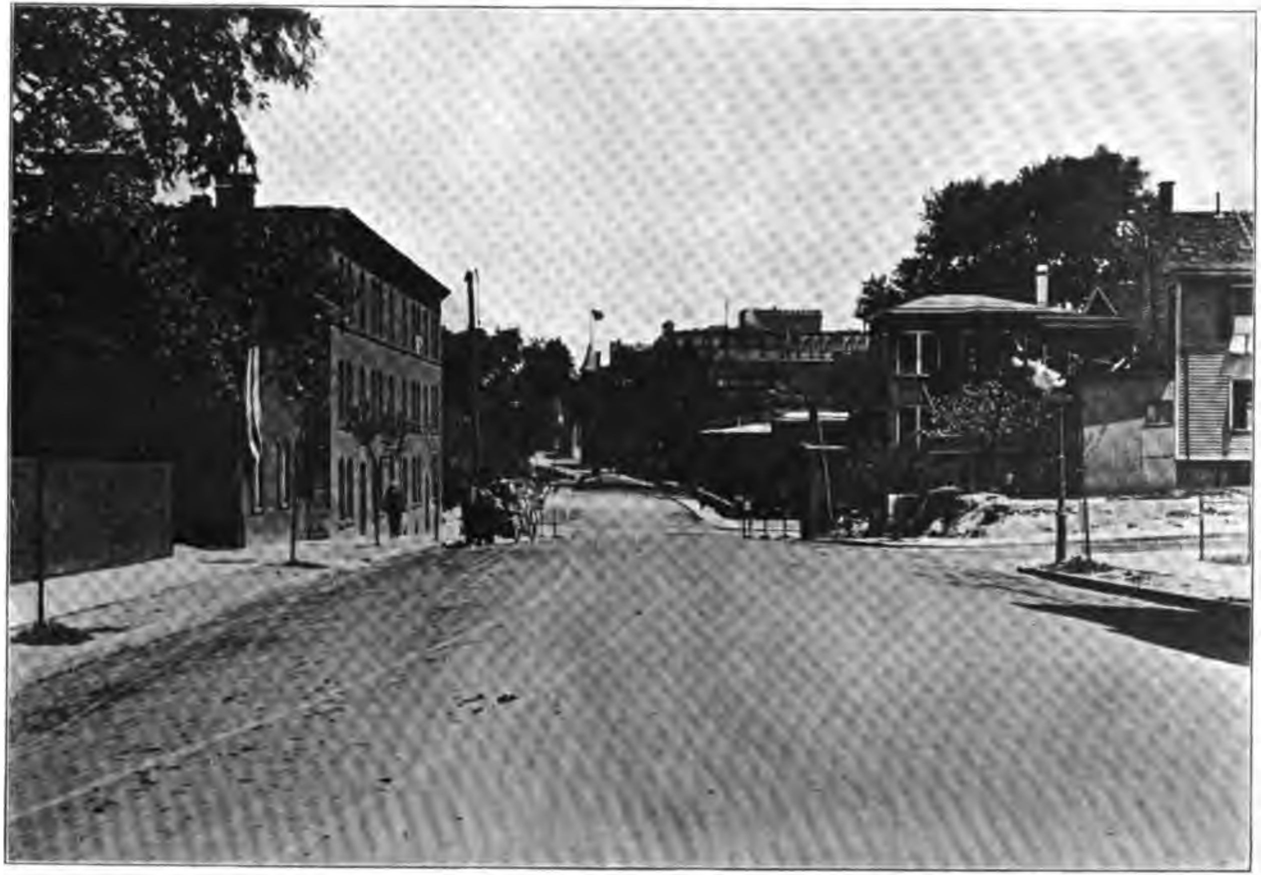
(3) Determination of silt.

(4) Comparative tension and compression tests of mortar made from the sand under examination and Standard Ottawa Sand using identical cement and only sufficient water to produce normal consistency.

Several hundred samples of sand have been investigated and tested. While these investigations have been carried on in order that their results may be used for the guidance of the engineers of the Department in the supervision of the City's construction work, they will nevertheless be available, on request, to other engineers and to architects and builders who desire to examine them.

From the knowledge gained in these investigations and from the results of the many tests made, certain salient features and characteristics of sands in general have been brought out. These may be briefly stated as follows:

The shape of the sand particle has less influence on the strength of mortar than is commonly supposed; round grain sand will compact better than sharp grains.



HUDSON STREET EXTENSION LOOKING NORTH FROM CAPITOL AVENUE.

abutting property than has any improvement undertaken since the building of Hartford Bridge and its west approach.

Employees of this Department numbering nearly one-half the regular force entered the service of the country in the late war. Several of these had overseas service.

ROLL OF HONOR.

Clement M. Broderick, Corp., 310 F. A., A. E. F.
Florence L. Chapin, Y. M. C. A. Canteen Service, France.
Robert E. Cross, 1st Lieutenant, 129th Engineers, A. E. F.
John F. Doran, Captain, E. O. R. C.
Winfred W. DeMay, Ensign, U. S. N. R. F.
George S. Francis, 91st Sanitary Squad, 12th Division.
Paul P. Kimball, 301st Engineers, A. E. F.
John W. Knox, Lieutenant Aviation Service.
Peter K. Rask, 101st M. G. Brigade, A. E. F.
Russell C. Strubell, Corporal, 74th Infantry.

Besides those mentioned in the above list, several, who while not connected with the Department at the time of entering service, had recently been members of our force. Some of these had resigned to accept other positions, while some were college students serving in this Department during vacation, who had returned to their studies previous to their enlistments.

In conclusion, I desire to express my appreciation of courtesies extended by the several other departments, boards and officials, and of the loyal and earnest labors of my co-workers in this Department.

Respectfully submitted,

ROSCOE N. CLARK,
City Engineer.

TABLES

SEWERS BUILT DURING YEAR ENDING MARCH 31, 1919.

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	Number Manholes	House Connect's No.	House Connect's Length	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
latbush Ave.	From Intercepting Sewer across Park River to Newfield Ave.	Antonio DiMarco	10 15 8	Tile Tile Cast Iron	764.2 457.6 167.	4	0		$6,201.89	$1,235.05	$4,966.84		
ully Brook Conduit	From Mather St. to 148 ft. north of Pliny St.	O'Neil Brothers	8'8" x 8'6" Special Section Pliny St. Culvert	Reinf. Concrete	272.7 39.7	2	1		13,398.12	11,107.04	2,291.08		Begun in July, 1916. Not completed Mar.31,1919 Cost of Construction to date $75,874.33 Right of Way for Section built 852.88 Total Cost of Section built $76,727.21
illside Ave.	Flatbush Ave. to near Catherine St.	Antonio DiMarco	12 10	Tile	350.0 340.0	2	22	330	1,713.08		1,713.08		
udson St.	Park River to south side of Elm St.	C. H. Slocomb	30 24 24 20 15	Concrete Concrete Tile Tile Tile ;	51.8 139.2 47.0 47.0 59.0	2	0		2,381.80	4,093.79			Reconstruction of connections For river crossing and overflow
	Intercepting Sewer in Wells St. to Park River	Antonio DiMarco	15	Tile	39.8	1	0		886.54				
		D. Larais by F. A. Barone	15	Tile	55.3	0	0		825.45				
ntercepting Sewer	Between Willow St. and P St.	A. W. Byrne & Son	36	Concrete	319.4	2	0		7,856.75	7,856.75			Reconstruction
onroe St.	White St. to near Ansonia St.	M. S. Sheketoff, trustee, W. T. Ryan	10	Tile	162.9	2	17	255	775.36		775.36		Begun in November, 1917
ountford St.	Broad St. to near Henry St.	Antonio DiMarco	10	Tile	295.1	1	8	120	664.14		664.14		

SEWER TABLE FOR YEAR ENDING MARCH 31, 1919 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	Number Manholes	House Connect's		Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
							No.	Length					
orth Beacon St.	Farmington Ave. to near Cone St.	N. C. Casciano & Co.	12 10	Tile Tile	534.0 310.0	3	32	416	$3,458.54	$1,878.00	$1,580.54		Reconstruction
ook Farm Sewer	Extend outlet at Park River	O'Neil Brothers	48 x 43	Concrete	233.0	1	0		4,000.00			4,000.00	For Hartford Coal Co.
rospect St.	Park River northerly Park River southerly	F. D. Miller F. D. Miller	18 30	Tile Concrete	30.5 61.8	0 0	0 0		93.82 447.05	93.82 447.05			For future storm water outlet
outh St.	At Franklin Ave.	F. A. Barone	Con se	nection wer	to old	0	0		623.24	623.24			Contract begun in Dec. 1916
an Block Ave.	47 ft. south of to 189 ft. north of Sequassen St.	Street Department	18 15	Tile Tile	89.4 196.2	2	0		520.79	520.79			For new Street Dept. Yard
					5062.6 0.96 m	22	80	1,121	43,846.57	27,855.53	11,991.04	4,000.00	

ewers reconstructd or discontinued on account of the above:

Hudson St.	+270 ft.	
Intercepting Sewer	−319.4 ft.	
North Beacon St.;	+844 ft.	1,433.4 = 0.27 miles
Net increase		3,629.2 = 0.69 miles
Sewers in use Mar 31, 1918		+ 150.74 miles
Sewers in use Mar. 31, 1919		+151.43 miles

The entire cost was paid by City for	1,136.4 ft.	= 0.22 miles	= 22.4%
The cost was part paid by City, part assessed for	2,545.2 ft.	= 0.48 miles	= 50.3%
The entire cost was assessed on property for	1,148.0 ft.	= 0.22 miles	= 22.7%
Privately built and paid for	233.0 ft.	= 0.04 miles	= 4.6%
	5,062.6 ft.	0.96 miles	100.0%

SEWERS BULT IN 1918-19 — SUMMARY BY MATERIALS AND SIZES.

10-inch Tile	1872.2 feet	
12-inch Tile	884.0 feet	
15-inch Tile	807.9 feet	
18-inch Tile	119.9 feet	
20-inch Tile	47.0 feet	
24-inch Tile	47.0 feet	
		3778.0 feet equals 0.72 miles equals 74.5 per cent.
24-inch Plain Concrete Circle	139.2 feet	
30-inch Plain Concrete Circle	113.6 feet	
36-inch Concrete on Piles	319.4 feet	
43x48-inch Concrete, Horseshoe	233.0 feet	
Special Section at Pliny Street	39.7 feet	
Reinforced Concrete Square Section	272.7 feet	
		1117.6 feet equals 0.21 miles equals 22.2 per cent.
8-inch Cast Iron		167.0 feet. equals 0.03 miles equals 3.3 per cent.
Grand Total		5062.6 feet equals 0.96 miles equals 100 per cent.

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1919.

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	North side and tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Albany Avenue	East St. to Magnolia St.	Paved	Sheet Asphalt	D. T.	1.69	2.8845	Nov. 21, 1914	Nov. 21, 1919
Albany Avenue	Magnolia to Woodland St.	Paved	Sheet Asphalt	D. T.	1.58	2.6600	Jan. 22, 1917	Jan. 22, 1922
Albany Avenue	Woodland to Baltimore St.	Paved	Sheet Asphalt	S. & D.	1.81	3.7711	May 8, 1918	May 8, 1923
Allyn Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	Jun. 12, 1899	June 12, 1904
Allyn Street	Trumbull St. to Union Pl.	Resurfaced	Sheet Asphalt	No	1.19	By City	Jan. 9, 1918	Jan. 9, 1923
Amer. & Cent. Rows	East of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Amer. & Cent. Rows	East of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum St. to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Ann Street	Allyn St. to Main St.	Paved	Sheet Asphalt	No	1.85	2.8726	Aug. 22, 1917	Aug. 22, 1922
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street	Spruce St. to Farm'ton Av.	Tracks relaid	Granite Block	D. T.	......	....	1911	....
Asylum Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford St. to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Asylum Street	Main St. to Spruce St.	Repaved	Sheet Asphalt	S. & D.	2.28	By City	Oct. 12, 1908	Oct. 12, 1918
Asylum Street	Spruce St. to Garden St.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Spruce St. to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Hopkins St. to Farm'ton Av	S. side resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Asylum Street	Garden St. west to Header	N. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Jun. 23, 1914	June 23, 1919
Atheneum Street	Prospect St. to Main St.	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Atheneum St., South	Main St. to Prospect St.	Paved	Sheet Asphalt	No	1.60	By City	Nov. 2, 1915	Nov. 2, 1920
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1897	....
Broad Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Capitol Avenue	Lafayette St. to Park River	Paved	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 26, 1905
Capitol Avenue	Lafayette St. to Broad St.	N. side resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Lafayette St. to Broad St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Broad St. to Park River	Both sides resurf'd	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.	......	....	1895	....
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	.65	By City	Dec. 6, 1911	No guarantee
Capitol Avenue	Park Ter. to Sigourney St.	Wid'd and repav'd	Sheet Asphalt	D. T.	1.66	By City	Jan. 22, 1917	Jan. 22, 1922
Central Row	Main St. to Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1919 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Central Row	Main St. to Post Office	Repaved	Sheet Asphalt	D. T.	$2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Church Street	Main St. to Trumbull St.	Paved	Sheet Asphalt	No	2.59	$2.1163	Nov. 8, 1897	Nov. 8, 1902
Church Street	Main St. to Trumbull St.	Resurfaced	Sheet Asphalt	No	1.67	By City	July 28, 1909	July 28, 1914
Church Street	Main St. to Trumbull St.	Wid.& Part Resurf	Sheet Asphalt	No	2.15	By City	Jan. 8, 1919	No guarantee
Church Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	1.58	1.8608	Jan. 22, 1917	Jan. 22, 1922
Church Street	Trumbull St. to Railroad	Wid'd (incomplete	Sheet Asphalt	No	2.15	By City	Jan. 8, 1919	No guarantee
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Church Street	Union Pl. to Spruce St.	Resurfaced	Sheet Asphalt	No	1.39	By City	Sep. 29, 1913	Sep. 29, 1918
Church Street	Spruce St. westerly	Paved	Granite Block	No	3.63	4.1578	Oct. 15, 1913	Oct. 15, 1914
Connecticut Boulev'd	State St. to Ferry St.	Paved	Sheet Asphalt	D. T.	1.58	2.8939	Jan. 22, 1918	Jan. 22, 1922
Farmington Avenue	Asylum Av.to Woodland St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue	Asylum Av.to Sigourney St.	Full width resurf.	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Both sides resurf'd	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1909	....
Farmington Avenue	Woodland to Tremont St.	Paved	Sheet Asphalt	D. T.	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue	Tremont St.to Prospect Av.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ferry Street	Front St. to foot of Hill	Paved	Sheet Asphalt	No	1.85	1.8246	Aug. 22, 1917	Aug. 22, 1922
Ferry Street	Foot of Hill to Conn. Bl'vd	Paved	Granite Block	No	4.03	3.9341	Dec. 18, 1917	Dec. 18, 1918
Ford Street	Pearl St. to Asylum St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Ford Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1913
Front Street	State St. to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Front Street	State St. to Morgan St.	Paved	Sheet Asphalt	No	2.15	2.8721	Dec. 5, 1913	Dec. 5, 1918
Gold Street	Main St. to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sep. 11, 1898	Sep. 11, 1903
Grove Street	Main St. to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect St. to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1898	....
Hamilton Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Haynes Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church St. to Main St.	Resurfaced	Sheet Asphalt	No	1.27	By City	May 19, 1911	May 19, 1916
High Street	Church St. to Main St.	Widened	Sheet Asphalt	No	3.43	By City	Jan. 8, 1919	Jan. 8, 1924
High Street	Asylum St. to Church St.	Resurfaced	Sheet Asphalt	No	0.89	By City	June 23, 1914	June 23, 1919
Hopkins Street	Broad St. to Asylum St.	Paved	Sheet Asphalt	No	2.58	2.3865	June 12, 1899	June 12, 1904
Hudson Street	Bridge over Park River	Paved	Sheet Asphalt	No	1.99	By City	Jan. 8, 1919	Jan. 8, 1924
Huyshope Avenue	Charter Oak Av. to Masseek	Paved	Sheet Asphalt	S. T.	3.43	4.4663	Aug. 14, 1918	Aug. 14, 1923

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1919 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Kilbourn Street	Charles St. to Conn. Bl'vd	Paved	Granite Block	No	$4.03	$6.2049	Dec. 18, 1917	Dec. 18, 1918
Kilbourn Street	Front St. to Charles St.	Paved	Sheet Asphalt	No	1.85	2.0682	Aug. 22, 1917	Aug. 22, 1922
Kinsley Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903
Laurel Street	Bridge over Park River	Paved	Brick	S. T.	......	....	1894	....
Laurel Street	Bridge over Park River	Repaved	Brick	S. T.	2.40	By City	July 11, 1900	....
Lewis Street	Pearl St. to Gold St.	Paved	Sheet Asphalt	No	2.51	1.808	Sep. 24, 1900	Sep. 24, 1905
Main Street	Arch St. to Morgan St.	Paved	Sheet Asphalt	D. T.	2.49	5.4887	Dec. 14, 1896	Dec. 14, 1901
Main Street	Morgan St. to Windsor Ave.	Paved	Sheet Asphalt	D. T.	2.70	4.6395	Oct. 11, 1897	Oct. 11, 1902
Main Street	Wyllys St. to Arch St.	Paved	Sheet Asphalt	D. T.	2.66	4.5750	Oct. 25, 1897	Oct. 25, 1902
Main Street	West of tracks along east side of South Green	Resurfaced	Sheet Asphalt	D. T.	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Across S. end of So. Green	Resurfaced	Sheet Asphalt	No	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Wyllys to Charter Oak Ave.	E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Main Street	State St. north	Tracks repaved	Wood Block	D. T.	......	....	1903	....
Main Street	Eng. House 1 to Buck'gham	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1916	....
Main Street	Eng. House 1 to Wells St.	W. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Char. Oak Av. to Atheneum	E. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Buckingham St. to Atheneum St., South	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1916	....
Main Street	Atheneum St. south to Pearl	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1917	....
Main Street	Jefferson St. to Park St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Windsor St. to Windsor Av.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Jefferson St. to Park St.	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1912	....
Main Street	Wyllys to N. end South Gr'n	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1908	....
Main Street	Park St. to Eng. House No. 1	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Triangle N. end South Gr'n	Resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Atheneum St. to Cent. Row	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	State St. to Windsor St.	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Wells St. to Ann St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Ann St. to Lumber St North 200' on Windsor Ave.	Whole St. resurf'd E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Maple Avenue	Congress St. to Morris St.	Paved	Sheet Asphalt	D. T.	1.58	2.6300	Jan. 22, 1917	Jan. 22, 1922
ket Street	State St. to Temple St.	Paved	Sheet Asphalt	S. T.	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1903
Street	Temple St. to Morgan St.	Paved	Sheet Asphalt	S. T.	2.56	2.3270	Oct. 9, 1899	Oct. 9, 1904
Street	Morgan St. to Pleasant St.	Paved	Sheet Asphalt	No	1.69	2.0173	Nov. 21, 1914	Nov. 21, 1919

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1919 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Market Street	State St. to Morgan St.	W. side and tracks resurfaced	Sheet Asphalt	S. T.	$1.65	By City	Aug. 4, 1904	Aug. 4, 1914
Market Street	Temple St. to Morgan St.	E. side resurfaced	Sheet Asphalt	S. T.	0.89	By City	June 23, 1914	June 23, 1919
Market Street	State St. to Morgan St.	Tracks resurfaced	Sheet Asphalt	S. T.	......	....	1914	....
Marsh Court	Market St. to Village St.	Paved	Sheet Asphalt	No	2.15	$1.1455	Dec. 5, 1913	Dec. 5, 1918
Morgan Street	Market St. to Main St.	Paved	Granite Block	S. T.	3.09	2.1525	Dec. 27, 1898	Aug. 27, 1899
Morgan Street	Intersection with Front St.	Paved	Granite Block	D. T.	......	By City	Dec. 5, 1913	No guarantee
Morgan Street	Front St. to Market St.	Paved	Sheet Asphalt	D. T.	2.15	3.1641	Dec. 5, 1913	Dec. 5, 1918
Mulberry Street	Main St. to Wells St.	Paved	Sheet Asphalt	No	2.55	2.6970	Nov. 14, 1898	Nov. 14, 1903
North Street	Windsor St. to Village St.	Paved	Sheet Asphalt	No	1.85	2.0418	Aug. 22, 1917	Aug. 22, 1922
Park Street	Main St. to Zion St.	Paved	Sheet Asphalt	D. T.	1.58	1.6267	Jan. 22, 1917	Jan. 22, 1922
Park Street	Under Railroad Bridge	Paved	Granite Block	S. T.	3.35	By City	Nov. 27, 1899	July 27, 1900
Park Street	Under Railroad Bridge	Relaid	Granite Block	S. T.	1.35	By City	Oct. 4, 1910	No guarantee
Park Street	Under Railroad Bridge	Repaved	Granite Block	D. T.	......	By Railroad	1912	....
Park Street	Bridge over Park River	Paved	Sheet Asphalt	D. T.	......	....	1898	....
Park Street	Bridge over Park River	Relaid	Sheet Asphalt	D. T.	......	By Railroad	1912	....
Pearl Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	2.89	3.8380	July 22, 1895	July 22, 1900
Pearl Street	Main St. to Ford St.	Repaved	Sheet Asphalt	S. T.	2.70	By City	Sep. 10, 1903	Sep. 10, 1913
Pearl Street	Main St. to Ford St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Pleasant Street	Winthrop St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.3373	July 11, 1898	July 11, 1903
Pleasant Street	Winthrop to Windsor St.	Paved	Granite Block	No	4.03	5.2958	Dec. 18, 1917	Dec. 18, 1918
Pleasant Street	Windsor St. to Railroad	Paved	Sheet Asphalt	No	2.15	2.7830	Dec. 5, 1913	Dec. 5, 1918
Portland Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	3.43	3.5832	Jan. 8, 1919	Jan. 8, 1924
Pratt Street	Main St. to Trumbull St.	Paved	Brick	No	......	By City	1892	....
Pratt Street	Main St. to Trumbull St.	Surfaced	Sheet Asphalt	No	1.68	1.4285	Aug. 14, 1899	Aug. 14, 1904
Pratt Street	Main St. to Trumbull St.	Repaved	Sheet Asphalt	No	2.19	By City	Nov. 26, 1917	Nov. 26, 1922
Prospect Street	Atheneum St. to Cent. Row	Paved	Sheet Asphalt	No	2.55	2.5256	July 25, 1898	July 25, 1903
Prospect Street	Grove St. to Central Row	Resurfaced	Sheet Asphalt	No	1.27	By City	Oct. 23, 1912	Oct. 23, 1917
Prospect Street	Bridge over Park River	Paved	Sheet Asphalt	No	1.99	By City	Jan. 8, 1919	Jan. 8, 1924
Sequassen Street	Hupshope Av. to foot of hill	Paved	Sheet Asphalt	No	1.77	3.3817	Dec. 18, 1917	Dec. 18, 1922
Sequassen Street	Ft. of hill to Van Dyke Av.	Paved	Granite Block	No	4.03	8.1669	Dec. 18, 1917	Dec. 18, 1918
Sheldon Street	Main St. to Union St.	Paved	Sheet Asphalt	No	2.20	2.5747	Oct. 4, 1911	Oct. 4, 1916
Sheldon Street	Union St. to Commerce St.	Paved	Sheet Asphalt	No	2.16	3.0100	Oct. 23, 1912	Oct. 23, 1917
Sheldon Street	Commerce St. to V. Dyke Av	Paved	Sheet Asphalt	No	1.77	2.2672	Dec. 18, 1917	Dec. 18, 1922
Spruce Street	Asylum St. to Church St.	Paved	Sheet Asphalt	No	2.51	3.0163	Oct. 1, 1900	Oct. 1, 1905

Spruce Street	Church St. northerly	Paved	Granite Block	No	$3.63	$4.3221	Oct. 15, 1913	Oct. 15, 1914
State Street	Main St. to Commerce St.	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
State Street	City Hall to Main St.	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. westerly	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. to Conn.Boul'v'd	Repaved	Sheet Asphalt	D. T.	2.16	By City	Dec. 9, 1912	Dec. 9, 1917
State Street	Conn.Boulv'd to Commerce	Covered	Macadam	No	......	By City	1908	....
State Street	Front St. to City Hall	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Talcott Street	Market St. to Main St.	Paved	Granite Block	No	3.09	2.7184	Sep. 26, 1898	May 26, 1899
Talcott Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.75	2.7184	Sep. 26, 1898	Sep. 26, 1903
Talcott Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	1.7221	Nov. 21, 1914	Nov. 21, 1919
Temple Street	Main St. to Market St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Temple Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	2.7883	Nov. 21, 1914	Nov. 21, 1919
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	E. side and tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1913
Trinity Street	Capitol Ave. to North end of Bridge	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27, 1898	June 27, 1903
Trumbull Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	No	1.55	By City	Dec. 30, 1915	Dec. 30, 1920
Trumbull Street	Church St. to Pratt St.	Resurfaced	Sheet Asphalt	No	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Pearl St. to Hicks St.	Paved	Granite Block	No	3.56	5.4946	Nov. 22, 1915	Nov. 22, 1916
Union Place	Asylum St. to Church St.	Paved	Granite Block	No	3.37	....	1894	....
Van Dyke Avenue	Sheldon St. to Masseek St.	Paved	Sheet Asphalt	No	1.77	2.1047	Dec. 18, 1917	Dec. 18, 1922
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Village Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.55	1.3329	Dec. 30, 1915	Dec. 30, 1920
Wethersfield Avenue	Wyllys St. to Bond St.	Paved	Sheet Asphalt	D. T.	1.55	2.3724	Dec. 30, 1915	Dec. 30, 1920
Windsor Avenue	Main St. to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sep. 11, 1899	Sep. 11, 1904
Windsor Avenue	Albany Ave. to Mather St.	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	July 21, 1914	July 21, 1919
Windsor Avenue	E. side Tunnel to Canton	Resurfaced	Sheet Asphalt	D. T.	1.99	By City	Jan. 9, 1918	Jan. 9, 1923
Windsor Avenue	Main St. to Canton St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1907	....
Windsor Avenue	Canton St. to Capen St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Windsor Avenue	Capen St. to Westland St.	Paved	Sheet Asphalt	D. T.	1.81	2.2346	May 8, 1918	May 8, 1923
Windsor Avenue	Westland St. to City Line	Paved	Sheet Asphalt	D. T.	3.43	4.1037	Jan. 8, 1919	Jan. 8, 1924
Windsor Street	Main St. to Park.	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903
Windsor Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.69	2.5563	Nov. 21, 1914	Nov. 21, 1919

Note—Price given, except for resurfacing, is for completed pavement (asphalt and concrete, exclusive of excavation).

SEWERS BUILT DURING YEAR ENDING MARCH 31, 1919.

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	Number Manholes	House Connect's No.	House Connect's Length	Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
latbush Ave.	From Intercepting Sewer across Park River to Newfield Ave.	Antonio DiMarco	10 15 8	Tile Tile Cast Iron	764.2 457.6 167.	4	0		$6,201.89	$1,235.05	$4,966.84		
ully Brook Conduit	From Mather St. to 148 ft. north of Pliny St.	O'Neil Brothers	8'8" x 8'6" Special Section Pliny St. Culvert	Reinf. Concrete	272.7 39.7	2	1		13,398.12	11,107.04	2,291.08		Begun in July, 1916. Not completed Mar.31,1919 Cost of Construction to date $75,874.33 Right of Way for Section built 852.88 Total Cost of Section built $76,727.21
illside Ave.	Flatbush Ave. to near Catherine St.	Antonio DiMarco	12 10	Tile	350.0 340.0	2	22	330	1,713.08		1,713.08		
udson St.	Park River to south side of Elm St.	C. H. Slocomb	30 24 24 20 15	Concrete Concrete Tile Tile Tile ;	51.8 139.2 47.0 47.0 59.0	2	0		2,381.80	4,093.79			Reconstruction of connections For river crossing and overflow
	Intercepting Sewer in Wells St. to Park River	Antonio DiMarco	15	Tile	39.8	1	0		886.54				
		D. Larais by F. A. Barone	15	Tile	55.3	0	0		825.45				
ntercepting Sewer	Between Willow St. and P St.	A. W. Byrne & Son	36	Concrete	319.4	2	0		7,856.75	7,856.75			Reconstruction
onroe St.	White St. to near Ansonia St.	M. S. Shekstoff, trustee, W. T. Ryan	10	Tile	162.9	2	17	255	775.36		775.36		Begun in November, 1917
ountford St.	Broad St. to near Henry St.	Antonio DiMarco	10	Tile	295.1	1	8	120	664.14		664.14		

SEWER TABLE FOR YEAR ENDING MARCH 31, 1919 (*Continued*).

STREET	LOCATION	CONTRACTOR	Size in Inches	Material	Length in Feet	Number Manholes	House Connect's		Total Cost	Part Paid by City	Part Assessed on Property	Part Paid by Private Parties	REMARKS
							No.	Length					
orth Beacon St.	Farmington Ave. to near Cone St.	N. C. Casciano & Co.	12 10	Tile Tile	534.0 310.0	3	32	416	$3,458.54	$1,878.00	$1,580.54		Reconstruction
ook Farm Sewer	Extend outlet at Park River	O'Neil Brothers	48 x 43	Concrete	233.0	1	0		4,000.00			4,000.00	For Hartford Coal Co.
rospect St.	Park River northerly Park River southerly	F. D. Miller F. D. Miller	18 30	Tile Concrete	30.5 61.8	0 0	0 0		93.82 447.05	93.82 447.05			For future storm water outlet
outh St.	At Franklin Ave.	F. A. Barone	Con se	nection wer	to old	0	0		623.24	623.24			Contract begun in Dec. 1916
an Block Ave.	47 ft. south of to 189 ft. north of Sequassen St.	Street Department	18 15	Tile Tile	89.4 196.2	2	0		520.79	520.79			For new Street Dept. Yard
					5062.6 0.96 m	22	80	1,121	43,846.57	27,855.53	11,991.04	4,000.00	

ewers reconstructd or discontinued on account of the above:

Hudson St.	+270 ft.		
Intercepting Sewer	−319.4 ft.		
North Beacon St.;	+844 ft.	1,433.4	= 0.27 miles
Net increase		3,629.2	= 0.69 miles
Sewers in use Mar 31, 1918			+ 150.74 miles
Sewers in use Mar. 31, 1919			+151.43 miles

The entire cost was paid by City for	1,136.4 ft.	= 0.22 miles	= 22.4%
The cost was part paid by City, part assessed for	2,545.2 ft.	= 0.48 miles	= 50.3%
The entire cost was assessed on property for	1,148.0 ft.	= 0.22 miles	= 22.7%
Privately built and paid for	233.0 ft.	= 0.04 miles	= 4.6%
	5,062.6 ft.	0.96 miles	100.0%

SEWERS BULT IN 1918-19 — SUMMARY BY MATERIALS AND SIZES.

10-inch Tile	1872.2 feet	
12-inch Tile	884.0 feet	
15-inch Tile	807.9 feet	
18-inch Tile	119.9 feet	
20-inch Tile	47.0 feet	
24-inch Tile	47.0 feet	
		3778.0 feet equals 0.72 miles equals 74.5 per cent.
24-inch Plain Concrete Circle	139.2 feet	
30-inch Plain Concrete Circle	113.6 feet	
36-inch Concrete on Piles	319.4 feet	
43x48-inch Concrete, Horseshoe	233.0 feet	
Special Section at Pliny Street	39.7 feet	
Reinforced Concrete Square Section	272.7 feet	
		1117.6 feet equals 0.21 miles equals 22.2 per cent.
8-inch Cast Iron		167.0 feet. equals 0.03 miles equals 3.3 per cent.
Grand Total		5062.6 feet equals 0.96 miles equals 100 per cent.

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1919.

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	North side and tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Albany Avenue	East St. to Magnolia St.	Paved	Sheet Asphalt	D. T.	1.69	2.8845	Nov. 21, 1914	Nov. 21, 1919
Albany Avenue	Magnolia to Woodland St.	Paved	Sheet Asphalt	D. T.	1.58	2.6600	Jan. 22, 1917	Jan. 22, 1922
Albany Avenue	Woodland to Baltimore St.	Paved	Sheet Asphalt	S. & D.	1.81	3.7711	May 8, 1918	May 8, 1923
Allyn Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	Jun. 12, 1899	June 12, 1904
Allyn Street	Trumbull St. to Union Pl.	Resurfaced	Sheet Asphalt	No	1.19	By City	Jan. 9, 1918	Jan. 9, 1923
Amer. & Cent. Rows	East of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Amer. & Cent. Rows	East of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum St. to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Ann Street	Allyn St. to Main St.	Paved	Sheet Asphalt	No	1.85	2.8726	Aug. 22, 1917	Aug. 22, 1922
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street	Spruce St. to Farm'ton Av.	Tracks relaid	Granite Block	D. T.	......	....	1911	....
Asylum Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford St. to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Asylum Street	Main St. to Spruce St.	Repaved	Sheet Asphalt	S. & D.	2.28	By City	Oct. 12, 1908	Oct. 12, 1918
Asylum Street	Spruce St. to Garden St.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Spruce St. to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Hopkins St. to Farm'ton Av	S. side resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Asylum Street	Garden St. west to Header	N. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Jun. 23, 1914	June 23, 1919
Atheneum Street	Prospect St. to Main St.	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Atheneum St., South	Main St. to Prospect St.	Paved	Sheet Asphalt	No	1.60	By City	Nov. 2, 1915	Nov. 2, 1920
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1897	....
Broad Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Capitol Avenue	Lafayette St. to Park River	Paved	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 26, 1905
Capitol Avenue	Lafayette St. to Broad St.	N. side resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Lafayette St. to Broad St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Broad St. to Park River	Both sides resurf'd	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.	......	....	1895	....
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	.65	By City	Dec. 6, 1911	No guarantee
Capitol Avenue	Park Ter. to Sigourney St.	Wid'd and repav'd	Sheet Asphalt	D. T.	1.66	By City	Jan. 22, 1917	Jan. 22, 1922
Central Row	Main St. to Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1919 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Central Row	Main St. to Post Office	Repaved	Sheet Asphalt	D. T.	$2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Church Street	Main St. to Trumbull St.	Paved	Sheet Asphalt	No	2.59	$2.1163	Nov. 8, 1897	Nov. 8, 1902
Church Street	Main St. to Trumbull St.	Resurfaced	Sheet Asphalt	No	1.67	By City	July 28, 1909	July 28, 1914
Church Street	Main St. to Trumbull St.	Wid.& Part Resurf	Sheet Asphalt	No	2.15	By City	Jan. 8, 1919	No guarantee
Church Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	1.58	1.8608	Jan. 22, 1917	Jan. 22, 1922
Church Street	Trumbull St. to Railroad	Wid'd (incomplete	Sheet Asphalt	No	2.15	By City	Jan. 8, 1919	No guarantee
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Church Street	Union Pl. to Spruce St.	Resurfaced	Sheet Asphalt	No	1.39	By City	Sep. 29, 1913	Sep. 29, 1918
Church Street	Spruce St. westerly	Paved	Granite Block	No	3.63	4.1578	Oct. 15, 1913	Oct. 15, 1914
Connecticut Boulev'd	State St. to Ferry St.	Paved	Sheet Asphalt	D. T.	1.58	2.8939	Jan. 22, 1918	Jan. 22, 1922
Farmington Avenue	Asylum Av. to Woodland St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue	Asylum Av. to Sigourney St.	Full width resurf.	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Both sides resurf'd	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1909	....
Farmington Avenue	Woodland to Tremont St.	Paved	Sheet Asphalt	D. T.	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue	Tremont St. to Prospect Av.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ferry Street	Front St. to foot of Hill	Paved	Sheet Asphalt	No	1.85	1.8246	Aug. 22, 1917	Aug. 22, 1922
Ferry Street	Foot of Hill to Conn. Bl'vd	Paved	Granite Block	No	4.03	3.9341	Dec. 18, 1917	Dec. 18, 1918
Ford Street	Pearl St. to Asylum St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Ford Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1913
Front Street	State St. to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Front Street	State St. to Morgan St.	Paved	Sheet Asphalt	No	2.15	2.8721	Dec. 5, 1913	Dec. 5, 1918
Gold Street	Main St. to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sep. 11, 1898	Sep. 11, 1903
Grove Street	Main St. to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect St. to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1898	....
Hamilton Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Haynes Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church St. to Main St.	Resurfaced	Sheet Asphalt	No	1.27	By City	May 19, 1911	May 19, 1916
High Street	Church St. to Main St.	Widened	Sheet Asphalt	No	3.43	By City	Jan. 8, 1919	Jan. 8, 1924
High Street	Asylum St. to Church St.	Resurfaced	Sheet Asphalt	No	0.89	By City	June 23, 1914	June 23, 1919
Hopkins Street	Broad St. to Asylum St.	Paved	Sheet Asphalt	No	2.58	2.3865	June 12, 1899	June 12, 1904
Hudson Street	Bridge over Park River	Paved	Sheet Asphalt	No	1.99	By City	Jan. 8, 1919	Jan. 8, 1924
Huyshope Avenue	Charter Oak Av. to Masseek	Paved	Sheet Asphalt	S. T.	3.48	4.4668	Aug. 14, 1918	Aug. 14, 1928

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1919 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Kilbourn Street	Charles St. to Conn. Bl'vd	Paved	Granite Block	No	$4.03	$6.2049	Dec. 18, 1917	Dec. 18, 1918
Kilbourn Street	Front St. to Charles St.	Paved	Sheet Asphalt	No	1.85	2.0682	Aug. 22, 1917	Aug. 22, 1922
Kinsley Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903
Laurel Street	Bridge over Park River	Paved	Brick	S. T.	......	....	1894	....
Laurel Street	Bridge over Park River	Repaved	Brick	S. T.	2.40	By City	July 11, 1900	....
Lewis Street	Pearl St. to Gold St.	Paved	Sheet Asphalt	No	2.51	1.808	Sep. 24, 1900	Sep. 24, 1905
Main Street	Arch St. to Morgan St.	Paved	Sheet Asphalt	D. T.	2.49	5.4887	Dec. 14, 1896	Dec. 14, 1901
Main Street	Morgan St. to Windsor Ave.	Paved	Sheet Asphalt	D. T.	2.70	4.6395	Oct. 11, 1897	Oct. 11, 1902
Main Street	Wyllys St. to Arch St.	Paved	Sheet Asphalt	D. T.	2.66	4.5750	Oct. 25, 1897	Oct. 25, 1902
Main Street	West of tracks along east side of South Green	Resurfaced	Sheet Asphalt	D. T.	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Across S. end of So. Green	Resurfaced	Sheet Asphalt	No	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Wyllys to Charter Oak Ave.	E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Main Street	State St. north	Tracks repaved	Wood Block	D. T.	......	....	1903	....
Main Street	Eng. House 1 to Buck'gham	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1916	....
Main Street	Eng. House 1 to Wells St.	W. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Char. Oak Av. to Atheneum	E. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Buckingham St. to Atheneum St., South	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1916	....
Main Street	Atheneum St. south to Pearl	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1917	....
Main Street	Jefferson St. to Park St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Windsor St. to Windsor Av.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Jefferson St. to Park St.	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1912	....
Main Street	Wyllys to N. end South Gr'n	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1908	....
Main Street	Park St. to Eng. House No. 1	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Triangle N. end South Gr'n	Resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Atheneum St. to Cent. Row	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	State St. to Windsor St.	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Wells St. to Ann St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Ann St. to Lumber St	Whole St. resurf'd	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
	North 200' on Windsor Ave.	E. side resurfaced						
Maple Avenue	Congress St. to Morris St.	Paved	Sheet Asphalt	D. T.	1.58	2.6300	Jan. 22, 1917	Jan. 22, 1922
Market Street	State St. to Temple St.	Paved	Sheet Asphalt	S. T.	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1903
Market Street	Temple St. to Morgan St.	Paved	Sheet Asphalt	S. T.	2.56	2.3270	Oct. 9, 1899	Oct. 9, 1904
Market Street	Morgan St. to Pleasant St.	Paved	Sheet Asphalt	No	1.69	2.0173	Nov. 21, 1914	Nov. 21, 1919

RECORD OF IMPROVED PAVEMENTS IN HARTFORD TO APRIL 1, 1919 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Market Street	State St. to Morgan St.	W. side and tracks resurfaced	Sheet Asphalt	S. T.	$1.65	By City	Aug. 4, 1904	Aug. 4, 1914
Market Street	Temple St. to Morgan St.	E. side resurfaced	Sheet Asphalt	S. T.	0.89	By City	June 23, 1914	June 23, 1919
Market Street	State St. to Morgan St.	Tracks resurfaced	Sheet Asphalt	S. T.	......	....	1914	....
Marsh Court	Market St. to Village St.	Paved	Sheet Asphalt	No	2.15	$1.1455	Dec. 5, 1913	Dec. 5, 1918
Morgan Street	Market St. to Main St.	Paved	Granite Block	S. T.	3.09	2.1525	Dec. 27, 1898	Aug. 27, 1899
Morgan Street	Intersection with Front St.	Paved	Granite Block	D. T.	......	By City	Dec. 5, 1913	No guarantee
Morgan Street	Front St. to Market St.	Paved	Sheet Asphalt	D. T.	2.15	3.1641	Dec. 5, 1913	Dec. 5, 1918
Mulberry Street	Main St. to Wells St.	Paved	Sheet Asphalt	No	2.55	2.6970	Nov. 14, 1898	Nov. 14, 1903
North Street	Windsor St. to Village St.	Paved	Sheet Asphalt	No	1.85	2.0418	Aug. 22, 1917	Aug. 22, 1922
Park Street	Main St. to Zion St.	Paved	Sheet Asphalt	D. T.	1.58	1.6267	Jan. 22, 1917	Jan. 22, 1922
Park Street	Under Railroad Bridge	Paved	Granite Block	S. T.	3.35	By City	Nov. 27, 1899	July 27, 1900
Park Street	Under Railroad Bridge	Relaid	Granite Block	S. T.	1.35	By City	Oct. 4, 1910	No guarantee
Park Street	Under Railroad Bridge	Repaved	Granite Block	D. T.	......	By Railroad	1912	....
Park Street	Bridge over Park River	Paved	Sheet Asphalt	D. T.	......	....	1898	....
Park Street	Bridge over Park River	Relaid	Sheet Asphalt	D. T.	......	By Railroad	1912	....
Pearl Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	2.89	3.8380	July 22, 1895	July 22, 1900
Pearl Street	Main St. to Ford St.	Repaved	Sheet Asphalt	S. T.	2.70	By City	Sep. 10, 1903	Sep. 10, 1913
Pearl Street	Main St. to Ford St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Pleasant Street	Winthrop St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.3373	July 11, 1898	July 11, 1903
Pleasant Street	Winthrop to Windsor St.	Paved	Granite Block	No	4.03	5.2958	Dec. 18, 1917	Dec. 18, 1918
Pleasant Street	Windsor St. to Railroad	Paved	Sheet Asphalt	No	2.15	2.7830	Dec. 5, 1913	Dec. 5, 1918
Portland Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	3.43	3.5832	Jan. 8, 1919	Jan. 8, 1924
Pratt Street	Main St. to Trumbull St.	Paved	Brick	No	......	By City	1892	....
Pratt Street	Main St. to Trumbull St.	Surfaced	Sheet Asphalt	No	1.68	1.4285	Aug. 14, 1899	Aug. 14, 1904
Pratt Street	Main St. to Trumbull St.	Repaved	Sheet Asphalt	No	2.19	By City	Nov. 26, 1917	Nov. 26, 1922
Prospect Street	Atheneum St. to Cent. Row	Paved	Sheet Asphalt	No	2.55	2.5256	July 25, 1898	July 25, 1903
Prospect Street	Grove St. to Central Row	Resurfaced	Sheet Asphalt	No	1.27	By City	Oct. 23, 1912	Oct. 23, 1917
Prospect Street	Bridge over Park River	Paved	Sheet Asphalt	No	1.99	By City	Jan. 8, 1919	Jan. 8, 1924
Sequassen Street	Hupshope Av. to foot of hill	Paved	Sheet Asphalt	No	1.77	3.3817	Dec. 18, 1917	Dec. 18, 1922
Sequassen Street	Ft. of hill to Van Dyke Av.	Paved	Granite Block	No	4.03	8.1669	Dec. 18, 1917	Dec. 18, 1918
Sheldon Street	Main St. to Union St.	Paved	Sheet Asphalt	No	2.20	2.5747	Oct. 4, 1911	Oct. 4, 1916
Sheldon Street	Union St. to Commerce St.	Paved	Sheet Asphalt	No	2.16	3.0100	Oct. 23, 1912	Oct. 23, 1917
Sheldon Street	Commerce St. to V. Dyke Av.	Paved	Sheet Asphalt	No	1.77	2.2672	Dec. 18, 1917	Dec. 18, 1922
Spruce Street	Asylum St. to Church St.	Paved	Sheet Asphalt	No	2.51	3.0163	Oct. 1, 1900	Oct. 1, 1905

Spruce Street	Church St. northerly	Paved	Granite Block	No	$3.63	$4.3221	Oct. 15, 1913	Oct. 15, 1914
State Street	Main St. to Commerce St.	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
State Street	City Hall to Main St.	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. westerly	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. to Conn.Boul'v'd	Repaved	Sheet Asphalt	D. T.	2.16	By City	Dec. 9, 1912	Dec. 9, 1917
State Street	Conn.Boulv'd to Commerce	Covered	Macadam	No	......	By City	1908	....
State Street	Front St. to City Hall	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Talcott Street	Market St. to Main St.	Paved	Granite Block	No	3.09	2.7184	Sep. 26, 1898	May 26, 1899
Talcott Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.75	2.7184	Sep. 26, 1898	Sep. 26, 1903
Talcott Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	1.7221	Nov. 21, 1914	Nov. 21, 1919
Temple Street	Main St. to Market St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Temple Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	2.7883	Nov. 21, 1914	Nov. 21, 1919
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	E. side and tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1918
Trinity Street	Capitol Ave. to North end of Bridge	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27, 1898	June 27, 1903
Trumbull Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	No	1.55	By City	Dec. 30, 1915	Dec. 30, 1920
Trumbull Street	Church St. to Pratt St.	Resurfaced	Sheet Asphalt	No	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Pearl St. to Hicks St.	Paved	Granite Block	No	3.56	5.4946	Nov. 22, 1915	Nov. 22, 1916
Union Place	Asylum St. to Church St.	Paved	Granite Block	No	3.37	....	1894	....
Van Dyke Avenue	Sheldon St. to Masseek St.	Paved	Sheet Asphalt	No	1.77	2.1047	Dec. 18, 1917	Dec. 18, 1922
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Village Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.55	1.3329	Dec. 30, 1915	Dec. 30, 1920
Wethersfield Avenue	Wyllys St. to Bond St.	Paved	Sheet Asphalt	D. T.	1.55	2.3724	Dec. 30, 1915	Dec. 30, 1920
Windsor Avenue	Main St. to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sep. 11, 1899	Sep. 11, 1904
Windsor Avenue	Albany Ave. to Mather St.	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	July 21, 1914	July 21, 1919
Windsor Avenue	E. side Tunnel to Canton	Resurfaced	Sheet Asphalt	D. T.	1.99	By City	Jan. 9, 1918	Jan. 9, 1923
Windsor Avenue	Main St. to Canton St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1907	....
Windsor Avenue	Canton St. to Capen St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Windsor Avenue	Capen St. to Westland St.	Paved	Sheet Asphalt	D. T.	1.81	2.2346	May 8, 1918	May 8, 1923
Windsor Avenue	Westland St. to City Line	Paved	Sheet Asphalt	D. T.	3.48	4.1037	Jan. 8, 1919	Jan. 8, 1924
Windsor Street	Main St. to Park.	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903
Windsor Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.69	2.5563	Nov. 21, 1914	Nov. 21, 1919

***Note*—Price given, except for resurfacing, is for completed pavement (asphalt and concrete, exclusive of excavation).**

IMPROVED PAVEMENTS IN HARTFORD APRIL 1, 1919

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Albany Avenue	Windsor Av. to Baltimore St.	D. T.	44683.00					1.48
Allyn Street	Trumbull St. to Union Place	No	6041.00					0.29
Amer. & Cent. Rows	East of Post Office	D. T.		1885.00				0.03
Ann Street	Asylum St. to Main St.	No	6647.66					0.38
Asylum Street	Spruce St. to Farmington Av.	D. T.		4658.72				0.16
Asylum Street	Spruce St. to Farmington Av.	D. T.	1701.58					
Asylum Street	Main St. to Spruce St.	S. T. & D. T.	10351.20					0.48
Atheneum Street	Prospect St. to Main St.	No	558.33					0.07
Atheneum St. South	Main St. to Prospect St.	No	1387.00					0.07
Broad Street	Bridge over Park River	No	451.55					0.02
Capitol Avenue	Lafayette St. to Laurel St.	D. T.	19901.44					0.81
Central Row	Main St. to Post Office	D. T.	2000.00					0.05
Church Street	Main St. to Spruce St.	No	8831.54					0.46
Church Street	Spruce St. westerly	No		238.17				0.01
Connecticut Boul'vd	State St. to Ferry St.	D. T.	2791.10					0.08
Farmington Avenue	Asylum to Prospect Aves.	D. T.	42630.44					1.60
Ferry Street	Front St. to Foot of Hill	No	907.5					0.06
Ferry Street	Foot of Hill to Conn. Boul'vd	No		425.6				0.03
Ford Street	Pearl St. to Asylum St.	D. T.	2658.90					0.10
Front Street	Morgan St. to Sheldon St.	No	9774.75					0.56
Gold Street	Main St. to Lewis St.	No	1458.00					0.08
Grove Street	Main St. to Front St.	No	2342.07					0.19
Hamilton Street	Bridge over Park River	No	869.00					0.02
Haynes Street	Pearl St. to Asylum St.	No			718.42			0.05
High Street	Asylum St. to Main St.	No	8393.9					0.42
Hopkins Street	Broad St. to Asylum St.	No	3135.80					0.21
Hudson Street	Bridge over Park River	No	459.10					0.02
Huyshope Avenue	Charter OakAv.to Masseek St	S. T.	8405.90					0.39

IMPROVED PAVEMENTS IN HARTFORD, APRIL 1, 1919 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Kilbourn Street	Front St. to Charles St.	No	729.7	....	....	....	....	0.05
Kilbourn Street	Charles St. to Conn. Boul'vd	No	....	849.6	....	....	....	0.05
Kinsley Street	Market St. to Main St.	No	1037.20	....	....	....	....	0.09
Laurel Street	Bridge over Park River	S. T.	....	....	....	411.00	....	0.02
Lewis Street	Pearl St. to Gold St.	No	1085.00	....	....	....	....	0.10
Main Street	Wyllys St. to Windsor Ave.	D. T.	56414.27	....	....	....	....	1.47
Main Street	State St. north	D. T.	....	....	....	....	500.00	0.06
Maple Avenue	Congress St. to Morris St.	D. T.	8725.10	....	....	....	....	0.24
Market Street	State St. to Morgan St.	S. T.	5255.28	....	....	....	....	0.25
Market Street	Morgan St. to Pleasant St.	No	2846.4	....	....	....	....	0.17
Marsh Court	Market St. to Village St.	No	552.95	....	....	....	....	0.08
Morgan Street	Market St. to Main St.	S. T.	....	1520.87	....	....	....	0.10
Morgan Street	Market St. to Front St.	S. T. & D. T.	2213.94	....	....	....	....	0.09
Morgan Street	Intersection of Front Street	D. T.	....	342.71	....	....	....	....
Mulberry Street	Main St. to Wells St.	No	1298.85	....	....	....	....	0.08
North Street	Windsor St. to Village St.	No	278.4	....	....	....	....	0.02
Park Street	Main St. to Zion St.	D. T.	19208.20	....	....	....	....	0.84
Park Street	Under Railroad Bridge	D. T.	....	560.00	....	....	....	0.03
Park Street	Bridge over Park River	D. T.	555.50	....	....	....	....	0.02
Pearl Street	Main St. to Ford St.	D. T.	8188.50	....	....	....	....	0.32
Pleasant Street	Winthrop St. to Main St.	No	1010.41	....	....	....	....	0.07
Pleasant Street	Winthrop St. to Windsor St.	No	....	1286.5	....	....	....	0.08
Pleasant Street	Windsor St. to Railroad	No	2239.71	....	....	....	....	0.14
Portland Street	Pleasant St. to Avon St.	No	2708.20	....	....	....	....	0.19
Pratt Street	Main St. to Trumbull St.	No	1438.00	....	....	....	....	0.11
Prospect Street	Atheneum St. to Central Row	No	1802.62	....	....	....	....	0.13
Prospect Street	Bridge over Park River	No	305.30	....	....	....	....	0.01
Sequassen Street	Huyshope Av. to Foot of Hill	No	1819.4	....	....	....	....	0.08
Sequassen Street	Foot of Hill to Van Dyke Ave.	No	....	489.1	....	....	....	0.02

IMPROVED PAVEMENTS IN HARTFORD, APRIL 1, 1919 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Sheldon Street	Main St. to Van Dyke Ave.	No	9041.66	....	....	....	....	0.54
Spruce Street	Asylum St. to Church St.	No	2286.00	....	....	....	....	0.12
Spruce Street	Church St. northerly	No	....	1527.82	....	....	....	0.09
State Street	City Hall to Main St.	D. T.	1395.00	....	....	....	....	0.04
State Street	Front St. to Conn. Boulevard	D. T.	2609.94	....	....	....	....	0.09
State Street	Front St. westerly	D. T.	343.10	....	....	....	....	....
State Street	Front St. to City Hall	D. T.	....	4501.81	....	....	....	0.15
Talcott Street	Market St. to Main St.	No	....	950.42	....	....	....	0.09
Talcott Street	Market St. to Main St.	No	340.20	....	....	....	....	....
Talcott Street	Market St. to Front St.	No	1279.1	....	....	....	....	0.09
Temple Street	Main St. to Front St.	No	3084.67	....	....	....	....	0.19
Trinity Street	Capitol Ave. to Ford St.	S. T. & D. T.	6947.80	....	....	....	....	0.27
Trumbull Street	Pearl St. to Main St.	No	6718.9	....	....	....	....	0.29
Trumbull Street	Pearl St. to Hicks St.	No	....	1096.40	....	....	....	0.05
Union Place	Asylum St. to Church St.	No	....	3267.00	....	....	....	0.12
Van Dyke Avenue	Sheldon St. to Masseek St.	No	4460.0	....	....	....	....	0.32
Village Street	Windsor St. to Avon St.	No	3951.6	....	....	....	....	0.29
Wethersfield Avenue	Wyllys St. to Bond St.	D. T.	25044.00	....	....	....	....	0.76
Windsor Avenue	Main St. to City Line	D. T.	46636.3	....	....	....	....	2.18
Windsor Street	Main St. to the Park.	No	....	2018.10	....	....	....	0.06
Windsor Street	The Park to Avon St.	No	5998.32	....	....	....	....	0.29
Totals........	....	....	454769.88	25617.82	718.42	411.0	500.00	19.06

Total Yardage all Pavements—482017.12 square yards.
Total Length—Asphalt 17.86 miles; Granite **Block 1.07 miles; Wood Block 0.06 miles; Asphalt Block 0.05 miles; Brick 0.02 miles.**
Total Length all Pavements—19.06 miles.

STREETS PAVED DURING YEAR ENDING MARCH 31, 1919.

Street	Section	Contractor	Pavement.	Length in Feet	Total Number of Sq. Yds.	Asphalt Sq. Yd.	Contract Prices Concrete Cu. Yd.	Contract Prices Excavation Cu. Yd.	Cost of Pavement and Headers. (Conn. Co. costs not included)	Assessment per Front Foot	Date of Final Payment	Guarantee Expires
hurch St.	Main St. to R. R. (Widening)	Ed. Balf Co.	Sheet Asphalt		3752.6	$2.15	Cost +	Cost +	$14,986.70	PaidbyCity	Jan. 8, 1919	No guarantee
igh St.	Church St. to Main St. (Widening).	Ed. Balf Co.	Sheet Asphalt		3930.5	1.99	$8.65	$2.35	16,247.67	PaidbyCity	Jan. 8, 1919	Jan. 8, 1924
udson St.	Bridge over Park River	Ed. Balf Co.	Sheet Asphalt	103.3	459.1	1.99			913.61	PaidbyCity	Jan. 8, 1919	Jan. 8, 1924
uyshope Ave.	Charter Oak Ave. to Masseek St.	Ed. Balf Co.	Sheet Asphalt	2,034.6	8405.6	1.99	8.65	1.85	24,247.44	4.4663222	Aug. 14, 1918	Aug. 14, 1923
ortland St.	Pleasant St. to Avon St.	Ed. Balf Co.	Sheet Asphalt	983.5	2708.2	1.99	8.65	1.85	10,431.52	3.5882388	Jan. 8, 1919	Jan. 8, 1924
rospect St.	Bridge over Park River	Ed. Balf Co.	Sheet Asphalt	68.7	305.3	1.99			607.55	PaidbyCity	Jan. 8, 1919	Jan. 8, 1924
indsor Ave.	Westland St. to City Line	Ed. Balf Co.	Sheet Asphalt	5,612.7	17096.7	1.99	8.65	1.85	68,770.81	4.1037609	Jan. 8, 1919	Jan. 8, 1924
otals........	....	....	....	8,802.8 1.67 miles	36658.3				136,205.80			

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID.

Street	*Location*	*Asphalt Used*	*Year Laid*
Albany Avenue	South side, Lumber St. to East St.	Trinidad	1900
Albany Avenue	North side and tracks, Lumber St. to East St.	California (Atlas)	1909
Albany Avenue	Both sides and tracks, East St. to 50 feet East of Magnolia St.	Aztec (Mexican)	1914
Albany Avenue	Magnolia St. to Woodland St.	Aztec	1917
Albany Avenue	Woodland St. to Baltimore St.	Bermudez	1917
Allyn Street	Trumbull St. to Union Pl.	Bermudez	1899
Ann Street	Asylum St. to Allyn St.	Trinidad	1898
Ann Street	Allyn St. to Main St.	Bermudez	1917
Asylum Street	Main St. to Spruce St.	Bermudez	1908
Asylum Street	Strips on both sides, Spruce St. to Garden and Hopkins Sts.	Bermudez and California (Atlas)	1912
Asylum Street	Strip on north side, Garden St. westerly to header at macadam	Aztec (Mexican)	1914
Asylum Street	South side, Hopkins St. to Farmington Ave.	Bermudez and 5% California	1913
Atheneum Street	Prospect St. to Main St.	Trinidad	1896
Atheneum St. South	Main St. to Prospect St.	Aztec	1915
Broad Street	Bridge over Park River	Bermudez and 5% California	1914
Capitol Avenue	Both sides, Park River Bridge to Laurel St	Bermudez	1909
Capitol Avenue	North side, Hungerford St. to Lafayette St.	Bermudez	1910
Capitol Avenue	South side and south track, Broad St. to Lafayette St.	Bermudez	1911
Capitol Avenue	North track and dummy, 150 east of Oak St. to Lafayette St.	Bermudez	1911
Capitol Avenue	Both sides, Broad St. to Park River Bridge	Bermudez	1911
Capitol Avenue	Tracks, Park River Bridge to Laurel St.	California (Atlas)	1909
Capitol Avenue	North side, Hungerford St. to Broad St.	California (Atlas)	1910
Capitol Avenue	Park Terrace to Sigourney St.	Aztec	1916–1917
Capitol Avenue	Intersection at Lafayette St.	California (Atlas)	1911
Central Row	Main St. to Granite Block	Bermudez (small area California)	1909
Church Street	Main St. to Trumbull St.	California (Atlas)	1909
Church Street	Union Pl. to Spruce St.	Bermudez and 5% California	1918
Church Street	Intersection at Spruce St.	Trinidad and Bermudez, 50 and 50%	1918
Church Street	Trumbull St. to Union Place	Aztec	1916
Church Street	Main St. to Trumbull St.	Bermudez	1918
Church Street	High St. to Union Place	Bermudez	1918
Connecticut Boule'd	State St. to Ferry St.	Aztec	1916
Farmington Avenue	South track and dummy, Sigourney St. to Woodland St.	Bermudez	1909
Farmington Avenue	South side, south track and dummy, from 110 feet east of Tremont St. to 120 feet west of Beacon St.	Bermudez and Trinidad	1911
Farmington Avenue	North side and north track, from 110 feet east of Tremont St. to 140 feet west of Beacon St.	California and Bermudez	1911
Farmington Avenue	Woodland St. to 100 feet east of Tremont St.	Bermudez	1910

Farmington Avenue	From 120 feet west of North Beacon St. and from 140 feet west of North Beacon St. to City Line, both sides	California (Atlas)	1911
Farmington Avenue	North track, Sigourney St. to Woodland St.	California (Atlas)	1909
Farmington Avenue	North and south sides, from Asylum to Woodland Sts.	Bermudez and 5% California (Atlas)	1913
Farmington Avenue	North and south tracks and dummy, from Sigourney St. to Asylum St.	Bermudez and 5% California (Atlas)	1913
Ferry Street	Front St. to foot of Hill.	Bermudez	1917
Ford Street	Asylum St. to Bridge over Park River	Bermudez	1908
Front Street	Potter St. to Sheldon St.	Bermudez and California	1912
Front Street	Potter St. to State St.	California (Acme)	1912
Front Street	Morgan St. to State St.	Bermudez and 5% California (Atlas)	1913
Front Street	Intersection at Talcott St.	Trinidad and Bermudez, 50 and 50%	1913
Gold Street	Main St. to Lewis St.	Trinidad	1898
Grove Street	Front St. to Prospect St.	California (Acme)	1912
Grove Street	Prospect St. to Main St.	Trinidad	1898
Hamilton Street	Bridge over Park River	Bermudez and 5% California	1914
High Street	Church St. to Main St.	Bermudez	1911
High Street	Church St. to Main St.	Aztec	1918
High Street	Asylum St. to south side of Allyn St., north side of Allyn St. to south side of Church Street	Bermudez and 5% California	1914
Hopkins Street	Broad St. to Asylum St.	Trinidad	1899
Hudson Street	Bridge over Park River	Bermudez	1918
Huyshope Avenue	Charter Oak Ave. to Masseek St.	Bermudez and Aztec	1918
Kilbourn Street	Front St. to Charles St.	Bermudez	1917
Kinsley Street	Market St. to Main St.	Trinidad	1898
Lewis Street	Pearl St. to Gold St.	Trinidad	1900
Main Street	East side, Wyllys St. to 100 feet south of Charter Oak Ave.	Aztec (Mexican)	1914
Main Street	East side, from 140 feet north of, to 100 feet south of Charter Oak Ave.	Bermudez	1910
Main Street	East side from Sheldon St. to 140 feet north of Charter Oak Ave.	California (Obispo)	1910
Main Street	Width of tracks along east side of South Green	Aztec	1916
Main Street	Across south end of South Green	Aztec	1916
Main Street	Sheldon St. Intersection	Bermudez	1910
Main Street	East side, from 80 feet north of Arch St. to Sheldon St.	California (Obispo)	1910
Main Street	Engine House No. 1 to Buckingham St., tracks	Aztec	1916
Main Street	East side, Atheneum St. to 80 feet north of Arch St.	Bermudez	1910
Main Street	East side, Atheneum St. to 70 feet north of Grove St.	Bermudez and California (Atlas)	1912
Main Street	East side, Central Row to 70 feet north of Grove St.	Bermudez	1912
Main Street	Buckingham St. to Atheneum St., south, tracks resurfaced	Aztec	1916
Main Street	East side, Central Row to State St.	Trinidad	1896
Main Street	East side, from State St. to 100 feet north of Temple St.	Bermudez	1912
Main Street	East side, from 100 feet north of Temple St. to 50 feet north of Talcott St.	Bermudez and California (Atlas)	1912
Main Street	East side, Windsor St. to 50 feet north of Talcott St.	Bermudez	1912
Main Street	North side, Windsor St. to 120 feet east of Pleasant St.	California (Atlas)	1911
Main Street	North side, Windsor Ave. to 120 feet east of Pleasant St.	Bermudez	1911
Main Street	West side, from Jefferson St. 80 feet north, and tracks 190 feet north	Bermudez	1912
Main Street	West side, Park St. to 80 feet north of Jefferson St.	Bermudez and Trinidad	1911

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Main Street	West side, Park St. to Engine House No. 1	California (Atlas)	1912
Main Street	West side, Wells St. to Engine House No. 1	Bermudez	1910
Main Street	West side, Wells St. 180 feet south of Mulberry St.	Bermudez and California (Atlas)	1912
Main Street	West side, from 270 feet south of Grove St. to 180 feet south of Mulberry	California (Acme)	1912
Main Street	West side, Grove St. 270 feet south	Bermudez	1912
Main Street	West side, Grove St. to Asylum St.	Bermudez and California (Acme)	1912
Main Street	West side, Asylum St. to 110 feet north of Church St.	Bermudez and California	1912
Main Street	South-west side, from 540 feet east of Ann St. to 110 feet north of Church	California (Atlas)	1912
Main Street	South side, from Ann St. 540 feet easterly	Bermudez and California (Atlas)	1912
Main Street	Triangle between tracks at Tunnel, including tracks and south side from east side of Ann St. west to Lumber St.	Aztec (Mexican)	1914
Main Street	Triangle between tracks at South Green	Bermudez and California (Atlas)	1912
Main Street	Tracks, Wyllys St. to north end of South Green	Bermudez	1908
Main Street	Tracks, Central Row to State St. and Pearl St. Intersection	Bermudez	1909
Main Street	Track work at Main St., State St. and Asylum St. Intersection	California (Atlas)	1909
Main Street	Tracks at Park St. to 190 feet north of Jefferson St.	California (Atlas)	1912
Main Street	West side, Wyllys St. to Park St. (East Section)	Trinidad	1897
Main Street	Atheneum St. South to Pearl St., tracks resurfaced.	Bermudez	1917
Maple Avenue	Congress St. to Morris St.	Aztec	1916
Market Street	West side, Morgan St. to State St.	California (Atlas)	1909
Market Street	Track, State St. to Morgan St.	Bermudez and 5% California	1914
Market Street	Morgan St. to Pleasant St.	Aztec (Mexican)	1914
Market Street	East side, State St. to Temple St.	Trinidad	1898
Market Street	East side, Temple St. to Morgan St.	Bermudez and 5% California	1914
Marsh Court	Village St. to Market St.	Bermudez and 5% California	1913
Morgan Street	Both sides and tracks, Market St. to Front St.	Bermudez and 5% California	1918
Mulberry Street	Main St. to Wells St.	Trinidad	1898
North Street	Windsor St. to Village St.	Bermudez	1917
Park Street	Main St. to Zion St.	Aztec	1916–1917
Park Street	Bridge over Park River	Bermudez	1912
Pearl Street	Tracks from Main St. to 150 feet west	Bermudez	1909
Pearl Street	Tracks, from 150 feet west of Main St. to Ford St.	Bermudez	1910
Pearl Street	Both sides, Main St. to Ford St.	Trinidad	1908
Pleasant Street	Winthrop St. to Main St.	Trinidad	1908
Pleasant Street	Windsor St. to Market St.	Trinidad	1918
Pleasant Street	Market St. to Railroad	Trinidad and Bermudez, 50 and 50%	1918

Portland Street	Pleasant St. to Avon St.	Aztec	1918
Pratt Street	Main St. to Trumbull St.	Bermudez	1917
Prospect Street	Central Row to Grove St.	California (Acme)	1912
Prospect Street	Bridge over Park River	Bermudez	1918
Prospect Street	Grove St. to Atheneum St.	Trinidad	1898
Sequassen Street	Foot of Hill to Huyshope Ave.	Bermudez	1917
Sheldon Street	Union St. to Taylor St.	California (Acme)	1912
Sheldon Street	Main St. to 77 feet west of Union St.	California (Atlas)	1911
Sheldon Street	Main St. from 77 west of Union St. to Union St.	Texaco	1911
Sheldon Street	Taylor St. to Van Dyke Ave.	Bermudez	1917
Spruce Street	Asylum St. to Church St.	Trinidad	1900
State Street	Gutters, both sides, from Market St. to Front St.	Bermudez	1901
State Street	South side and track, from end of granite block west of Front St. to Connecticut Boulevard	Bermudez	1912
State Street	North side, track and dummy, from 220 feet east of granite block to Connecticut Boulevard	Bermudez and California (Acme)	1912
State Street	North side, track and dummy, from granite block 220 feet easterly	California (Acme)	1912
State Street	North side, granite block to Main St.	California (Atlas)	1909
Talcott Street	Gutters on both sides, Market St. to Main St.	Trinidad	1898
Talcott Street	Front St. to Market St.	Aztec (Mexican)	1914
Temple Street	Market St. to Main St.	Trinidad	1898
Temple Street	Front St. to Market St.	Bermudez and 5% California	1914
Trinity Street	East side and tracks, Capitol Ave. to Bridge	Bermudez	1908
Trinity Street	West side, Capitol Ave. to Ford St.	Aztec (Mexican)	1914
Trumbull Street	Asylum St. to Pearl St.	Texaco	1915
Trumbull Street	Asylum St. to Pratt St. and Church St. to Main St.	Trinidad	1898
Trumbull Street	Church St. to Pratt St.	Bermudez and 5% California	1914
Van Dyke Avenue	Sheldon St. to Masseek St.	Bermudez	1917
Village Street	Windsor St. north	Trinidad	1898
Village Street	City Park to Pleasant St.	Trinidad	1899
Village Street	Pleasant St. to North St.	Aztec	1915
Village Street	North St. to Avon St.	Texaco	1915
Wethersfield Ave.	Wyllys St. to Bond St.	Aztec	1915
Windsor Avenue	Tracks, Albany Ave. to Canton St.	Bermudez	1907
Windsor Avenue	Tracks, Canton St. to Capen St.	California (Atlas)	1910
Windsor Avenue	Capen St. to Westland St.	Bermudez	1917
Windsor Avenue	East side, Canton St. to Capen St., also west side, Mather St. to Capen St.	Trinidad	1899
Windsor Avenue	West side, Main St. to Mather St.	Aztec (Mexican)	1914
Windsor Avenue	East side, Main St. to Canton St.	Bermudez	1917
Windsor Avenue	Westland St. to City Line	Aztec and Bermudez	1918
Windsor Street	City Park to Pleasant St.	Trinidad	1898
Windsor Street	Pleasant St. to Avon St.	Aztec (Mexican)	1914

TABLE SHOWING COST PER YARD FOR REPAIRS TO SHEET ASPHALT PAVEMENT ON TYPICAL STREETS OR SECTIONS OF STREETS FOR EACH YEAR AFTER THE EXPIRATION OF GUARANTEE TO APRIL 1, 1919.

Street	*Section*	*Yards City Only*	*Com-pleted*	*Years Guaranteed*	*Sixth Year*	*Seventh Year*	*Eighth Year*	*Ninth Year*	*Tenth Year*	*Eleventh Year*	*Twelfth Year*	*Thirteenth Year*	*Fourteenth Year*	*Fifteenth Year*	*Sixteenth Year*	*Seventeenth Year*	*Eighteenth Year*	*Nineteenth Year*	*Twentieth Year*
					$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Ann Street.....	Asylum St. to Allyn St........	1170	1898	5	....	....	....	....	.006	....	.005	....	.01	.01	.01	....	....	.002	....
Capitol Avenue.	Sigourney St. to Laurel St.....	2059	1909	5	....	....	.071	.023	....	....	....	....	....	....	....	....	....	....	....
Church Street...	Main St. to Trumbull St.......	1399	1909	5	.008	....	.018	....	....	....	....	....	....	....	....	....	....	....	....
Farmington Ave.	Woodland St. to Tremont St...	8741	1910	5	....	.002	.021	....	....	....	....	....	....	....	....	....	....	....	....
Farmington Ave.	Tremont St. to Prospect Ave...	4153	1911	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Front Street ...	Sheldon St. to State St.	5192	1912	5	.009	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Street.....	Main St. to Lewis St..........	1458	1898	5	....	....	....	....	....	....	....	.02	.02	....	.01	.006	.005	.027	.007
Grove Street....	Main St. to Prospect St.......	913	1898	5	....	....	....	....	.04	.06	.06	.03	.12	.14	.07	.049	.078	.138	.014
Grove Street ...	Prospect St. to Front St.	1429	1912	5	.004	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hopkins Street..	Broad St. to Asylum St........	3136	1899	5	....	.07	.09	.24	.12	.22	.17	.13	.07	.11	.067	.068	.058	.071	....
Kinsley Street..	Main St. to Market St........	1037	1898	5	....	....	....	....	....	.09	....	.01	....	....	.01	.005	.003	.058	.009
Lewis Street....	Pearl St. to Gold St..........	1085	1900	5	....	....	....	....	....	.01	.02	....	.01	.009	....	.003	....	....	....
Mulberry Street.	Main St. to Wells St..........	1299	1898	5	....	.02	....	.02	.04	.01	....	.02	.03	.05	.07	.004	.015	.038	.097
Pearl Street.....	Main St. to Ford St..........	4581	1903	10	....	....	....	....	....	.03	.011	.092	.015	.012	....	....	....	....	....
Pleasant Street..	Main St. to Winthrop St......	1010	1898	5	.01	....	....	....	....	....	.05	.01	....	....	.01	.016	.013	.024	....
Sheldon Street..	Main St. to Union St..........	4287	1911	5	.005	.013	....	....	....	....	....	....	....	....	....	....	....	....	....
Sheldon Street..	Union St. to Commerce St.	1354	1912	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Spruce Street...	Asylum St. to Church St.......	2286	1900	5	....	....	....	.002	.002	.01	.02	.05	.05	.051	.013	.03	.063	....	....
State Street....	Front St. to Conn. Boulevard..	1700	1912	5	.002	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Temple Street...	Main St. to Market St........	1052	1898	5	.003	.006	....	....	....	....	.01	....	....	.03	.001	.003	.01	.042	....
Trinity Street...	E. side, Pearl St. to Capitol Ave.	2000	1908	5	....	....	.019	.028	.025	....	....	....	....	....	....	....	....	....	....
Village Street...	City Park to Pleasant St......	1927	1899	5	....	....	....	....	....	....	.005	.03	.02	.01	.016	.039	.023	....	....

8vo
TE
25

THIRTEENTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1920

THIRTEENTH ANNUAL REPORT

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

OF THE

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1920

THE BOND PRESS, INC.,
HARTFORD, CONN.

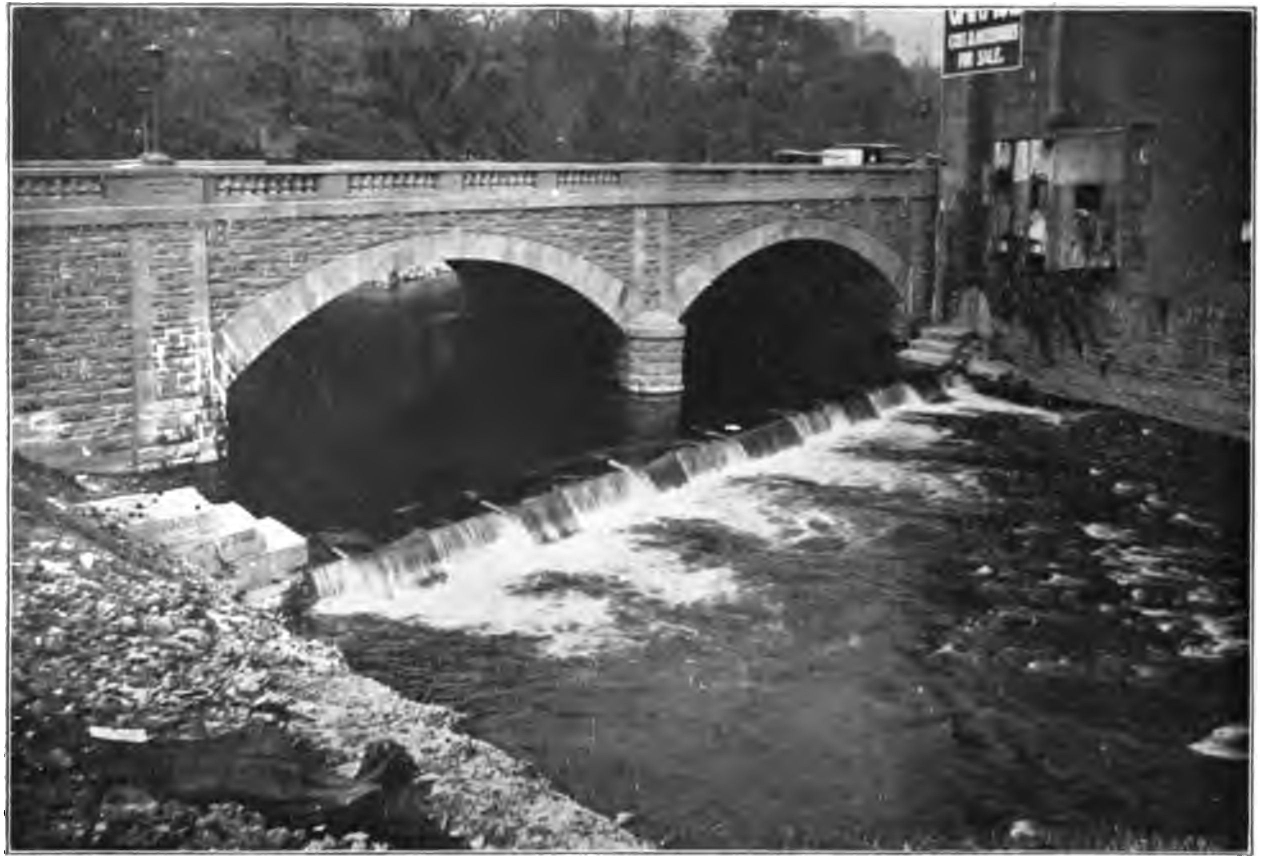
HARVARD UNIVERSITY
The Library of the Schools
of Landscape Architecture and City Planning

ORGANIZATION.

ROSCOE N. CLARK, City Engineer.
ROBERT J. ROSS, Assistant City Engineer.
WILLARD S. BREWER, Division Engineer.
HERBERT G. CLARK, Division Engineer.
H. IRVING SKILTON, Division Engineer.
F. PERRY CLOSE, Division Engineer.
F. G. FLOOD, Chemist.
ALDEN WELLS, Senior Assistant Engineer.
GEORGE S. FRANCIS, Senior Assistant Engineer.
CHARLES W. COOKE, Senior Assistant Engineer.
ROBERT E. CROSS, Senior Assistant Engineer.
PETER K. RASK, Junior Assistant Engineer.
JOHN P. MURPHY, Junior Assistant Engineer.
GEORGE ANGELO, Junior Assistant Engineer.
AARON FIEN, Junior Assistant Engineer.
EDWARD L. DONAGHUE, Inspector.
RAYMOND W. SMITH, Inspector.
JUDSON B. ROOT, Inspector.
WILLIAM H. BRAINARD, Inspector.
PAUL P. KIMBALL, Inspector.
LUCENE H. STETSON, Clerk.

WINFRED W. DE MAY,
CLEMENT M. BRODERICK,
THOMAS ROWLAND,
*RUSSELL C. STRUBELL,
DANIEL R. MUIRHEAD,
WILLIAM H. DAVIS,
HARRY E. STEDMAN.

*Resigned in July, 1919.



LOW DAM AT HUDSON STREET CARRYING TWIN SEWAGE CONDUITS OF THE INTERCEPTING SEWER.

REPORT.

Hartford, Conn., May 31, 1920.

To his Honor the Mayor, and to the Honorable Court of Common Council of the City of Hartford, Connecticut.

Gentlemen:

I have the honor to submit the following report of the work of the Department of Engineering for the year ending March 31, 1920.

SEWERS AND BRIDGES.

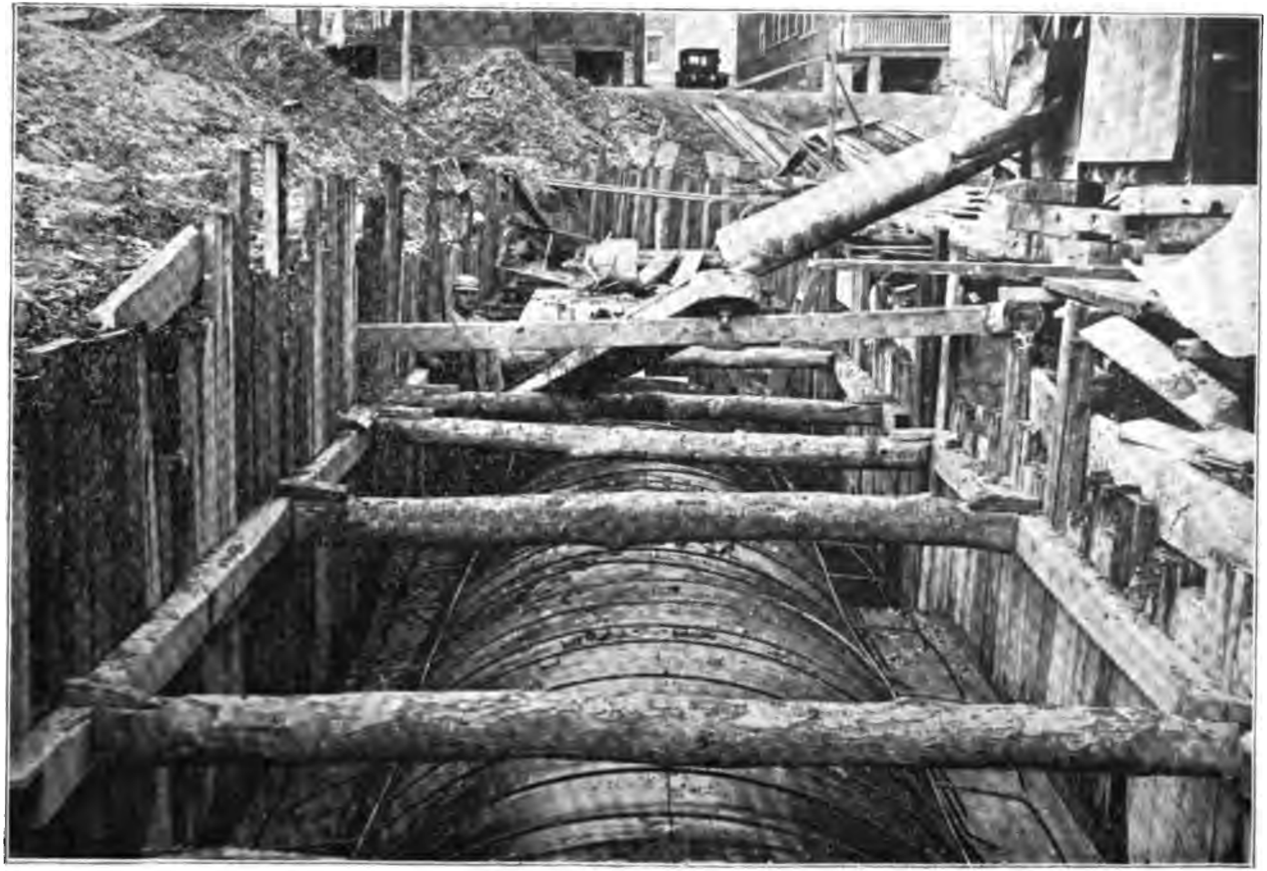
An examination of the detail figures concerning construction of sewers during the past year reveals the fact that the amount expended, some $58,000, is slightly in excess of amount expended during the season of 1918. It is, however, small compared with average amounts of previous years. For instance, the average for the four years 1914-15-16-17 was $150,000. The outstanding feature of this sewer construction has been the extreme difficulty experienced in getting this small amount of work done, due almost entirely to the labor situation.

Wherever possible excavation has been done by machinery, with a consequent saving of hand labor. On such work as it was impractical to use anything but hand labor on excavation, the progress was exceedingly slow.

Up to within about two years one would find the same laborers in the employ of the several contractors year after year. There were, of course, a few who fell out and new men would take their places, but a large number of laborers followed this work regularly. At the present time very few of these are left, some attracted by high wages having gone into other industries, and quite a few having returned to their native land, so it is to the new recruits that we must look for our labor. Even these are hard to get, for sewer construction involves trench work and oftentimes trenching through wet material, with the result that the laborer goes to highway construction or to building or other work where more comfortable working conditions may be found. When the sewer contractor offers appreciably higher wages or a bonus to attract men, other employers soon meet this increase and the situation is not improved. It seems there are likely to be very few bids on sewer work for the coming year, and the prices will be considerably higher than heretofore.

As to the work accomplished during the year, tables appended to this report give a list of all sewers built, together with data concerning their construction and cost.

The Gully Brook Conduit has progressed some 500 feet, so that its terminus is now about 200 feet west of Garden Street. The work will be continued the coming season until a point 150 feet north of Greenfield Street is reached, this being the limit of the present contract. Construction plans have been completed to take this to the City Line of 1859, which is several hundred feet north of Vineland Terrace, but it will be impossible to let a contract within the balance of the appropriation. The reason for this deficiency may be stated as follows: The estimate of cost for the construction of this conduit from Liberty Street to the City Line of 1859 was made in February, 1913, but appeals and court proceedings delayed commencement of the work until 1916. This work under ordinary conditions would have taken about three years to build, but owing to the abnormal conditions which have since existed, four years' work has resulted in the construction of only 3,100 lineal feet out of a total of 5,700 feet, and that at a cost of $97,600 out of a total of $130,300 available. At the end of the present season 3,740 feet will have been completed



BUILDING "GULLY BROOK CONDUIT", WEST OF GARDEN STREET.

at a cost of about $119,000. The balance, about $11,000, will need to be supplemented by $50,000 before the work can be completed. A layout has been published for the section from near Vineland Terrace to Westland Street and a preliminary assessment prepared.

During 1918 about 30 feet of the arch of the Nook Farm sewer collapsed at a point adjacent to the Arrow Electric buildings. Investigation at that time showed that this sewer was in very bad shape south of Hawthorn Street and in poor condition north of this street. This is a 48-inch circular sewer, but measurements taken in a number of places showed considerable distortion, at one point the vertical diameter being only 45 inches while the horizontal diameter had increased to 52 inches. This distortion may be accounted for by the fact that this sewer was built through an old brook valley and its upper half was then above the surface of the ground and as a consequence there was not enough lateral support to withstand the weight of the deep fill made in later years. A section 420 feet in length extending from the railroad to Hawthorn Street was rebuilt during the past year at a cost of about $9;800.

The construction of the dam across the Park River just east of the Hudson Street bridge, with two 10-inch pipe lines enclosed, completed a sewer crossing at grade and eliminated an inverted syphon built when the intercepting sewer was under construction. This rebuilding scheme was described in the last annual report.

One street culvert was built, located in Oliver Street Cemetery Brook crossing just west of Hillside Avenue. It is of reinforced concrete, box shaped, 6 feet 6 inches high by 8 feet 6 inches wide by 50 feet long and cost $2,100.

In response to a petition from residents of Morningside Street and Euclid Street situated west of Blue Hills Avenue near the City Line, sewers have been designed for all streets east of Granby Street, Westbrook and Canaan Streets not served by the sewers built in 1916-17. This will involve an extension of the intercepting sewer in Granby Street from Uphill Street to Westminster Street through deep cutting, the expense of which should be borne by the City. On this account an appropriation will be necessary before work on this system can proceed.

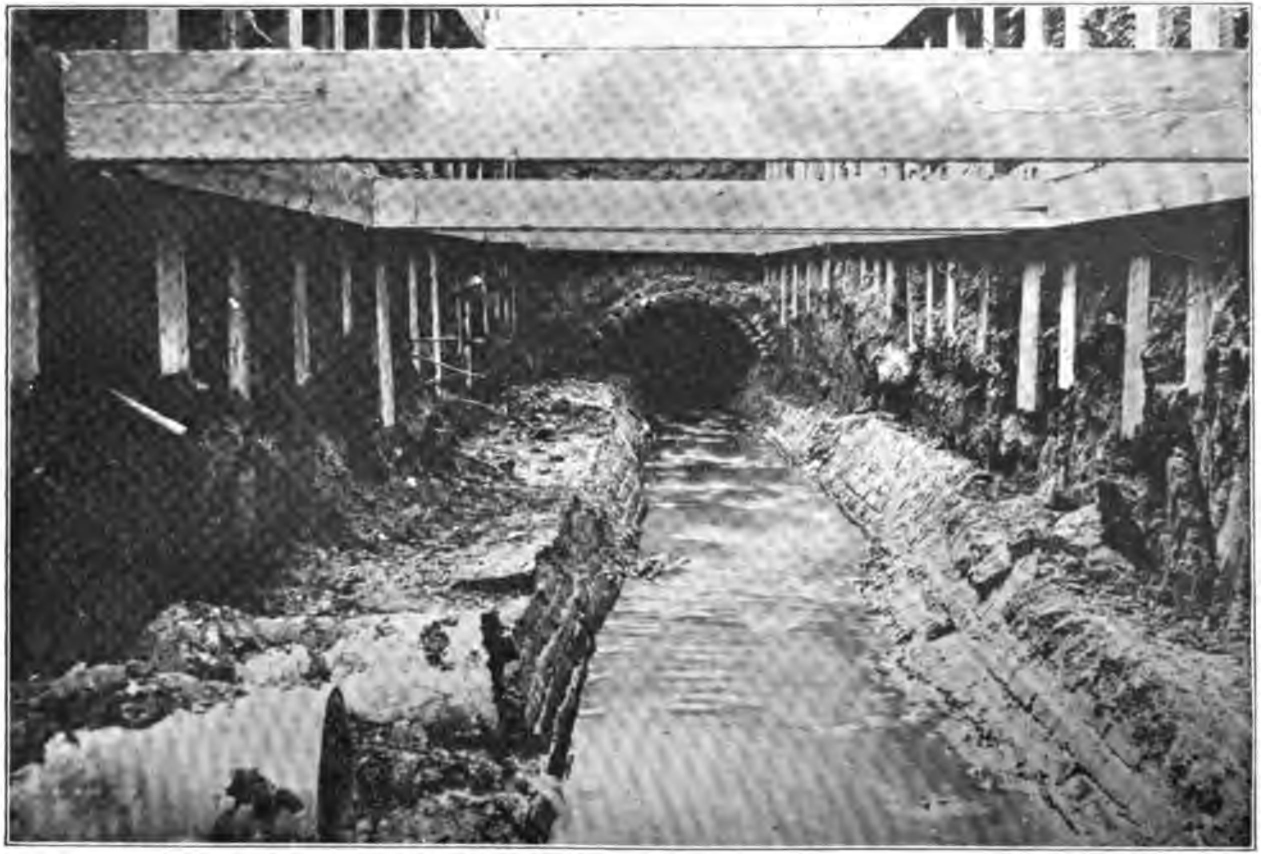
It is expected that during the present year sewers in Wilmath Street and in Kensington Street will be finished, and that sewers will be built in Andover Street, west of Blue Hills Avenue, in Stonington, Lisbon and Groton Streets located north of Colt Park, and in tracts bought by the Housing Corporation, one located west of Zion Street south of Catherine Street, and one west of Newington Avenue just south of New Britain Avenue.

If plans are made to pave Chapel Street in 1921, the sewer in that street should be rebuilt this year.

Work has been continued during the winter on the plotting of old sewers of which there were no maps, the work being mostly in the Asylum Hill section.

In connection with the proposed annexation of a portion of the town of Bloomfield a rough estimate was made of the probable cost of trunk line sanitary sewers to serve the part considered. It was necessary to run several lines of levels over the section in order to determine the watershed limits.

In connection with the proposal to dyke the South Meadows studies were made to determine if Wethersfield Cove could be used to store the discharge of Folly Brook and the meadows during periods of high water in the Connecticut River. The suggestion had been made to enclose the Cove as well as the South Meadows by a dyke running from Wawarme Avenue south along the river to connect with high land east of the prison in Wethersfield. The probable discharge of Folly Brook and the enclosed area was estimated. The storage capacity of the Cove at different levels was determined and the periods for which this water would have to be held was ascertained. It was found that the storage capacity of the Cove will be inadequate to take care of the run-off during extended periods of high water in the Connecticut River.



"NOOK FARM" SEWER REPAIRS, SHOWING DISTORTION OF OLD 48-INCH SEWER.

SEWER GAUGES.

Two recording gauges were installed on the Franklin Avenue outlet sewer, one at the overflow into Folly Brook and the other where the sewer crosses Wethersfield Avenue. It is hoped that by these gauges some information respecting the action of this sewer will be obtained. There have been complaints that this sewer overflowed into Folly Brook and Wethersfield Cove too frequently.

All possible data regarding flood heights in the Park River have been collected and tabulated with the result that we now have a record of heights reached during some twenty storms between March, 1905, and May, 1919. These results have also been plotted so as to give a profile of the water surface from the Connecticut River to the junction of the north and south branches at Willow Street, and for both branches. This indicates the points of local congestion, one such being on the north branch just upstream of its junction with the south branch. Several years ago the river channel was changed by private owners for a length of several hundred feet and its cross-sectional area greatly reduced in comparison with the old channel. The south branch is similarly congested just downstream from Park Street, due to filling by the owners on both sides. Steps should be taken to establish lines which will prevent encroachments and the consequent damming of the river, a result which is injurious to all abutting owners and to the City as well.

BRIDGES.

Work was resumed on the construction of the bridge over the north branch of the Park River at Capitol Avenue Extension, the abutments and pier of which had been completed last year. The work involved the construction of the reinforced concrete girders and slab and parapet railing and the laying of the asphalt surface of the roadway. Traffic was allowed to cross the structure on September 20, 1919. The total cost was $40,913.04.

This bridge was designed in such a manner as to allow the installation of a double track trolley at any future time, and also of all public utility underground lines. The electric lighting duct and a 16-inch water pipe were laid during the construction of the bridge, the former in a trough under the north roadway and the latter on beams constructed for the purpose under the south walk.

For the bridge over the south branch of the Park River about 1,100 feet south of Hamilton Street, wash borings have been made, and design, drawings, and specifications completed ready for advertising for bids. This bridge, which will be similar in appearance to the one at Capitol Avenue Extension, just described, will span the new channel of the river being excavated by The Liberty Street Realty Co. as a part of their development of this section.

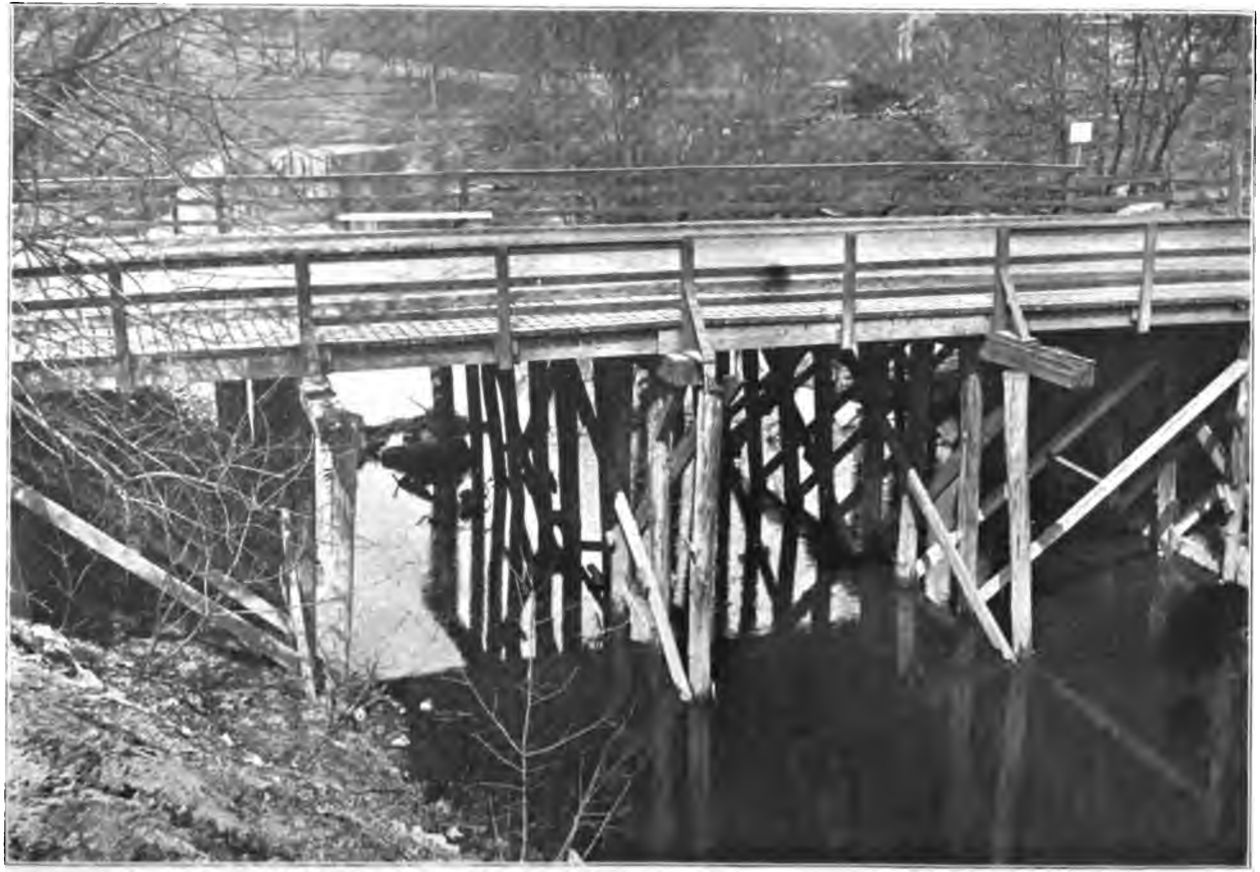
STREET DEPARTMENT SHED.

An additional wagon shed for the Street Department Storeyard was designed by this office and its construction supervised. The shed has a brick wall to correspond with the older shed next to it. It has room to store twenty-eight wagons of the large types used by the City. Work was started on August 2 by The J. H. Grozier Co. and the shed was practically completed by September 1. The whole structure cost $3,102.05.

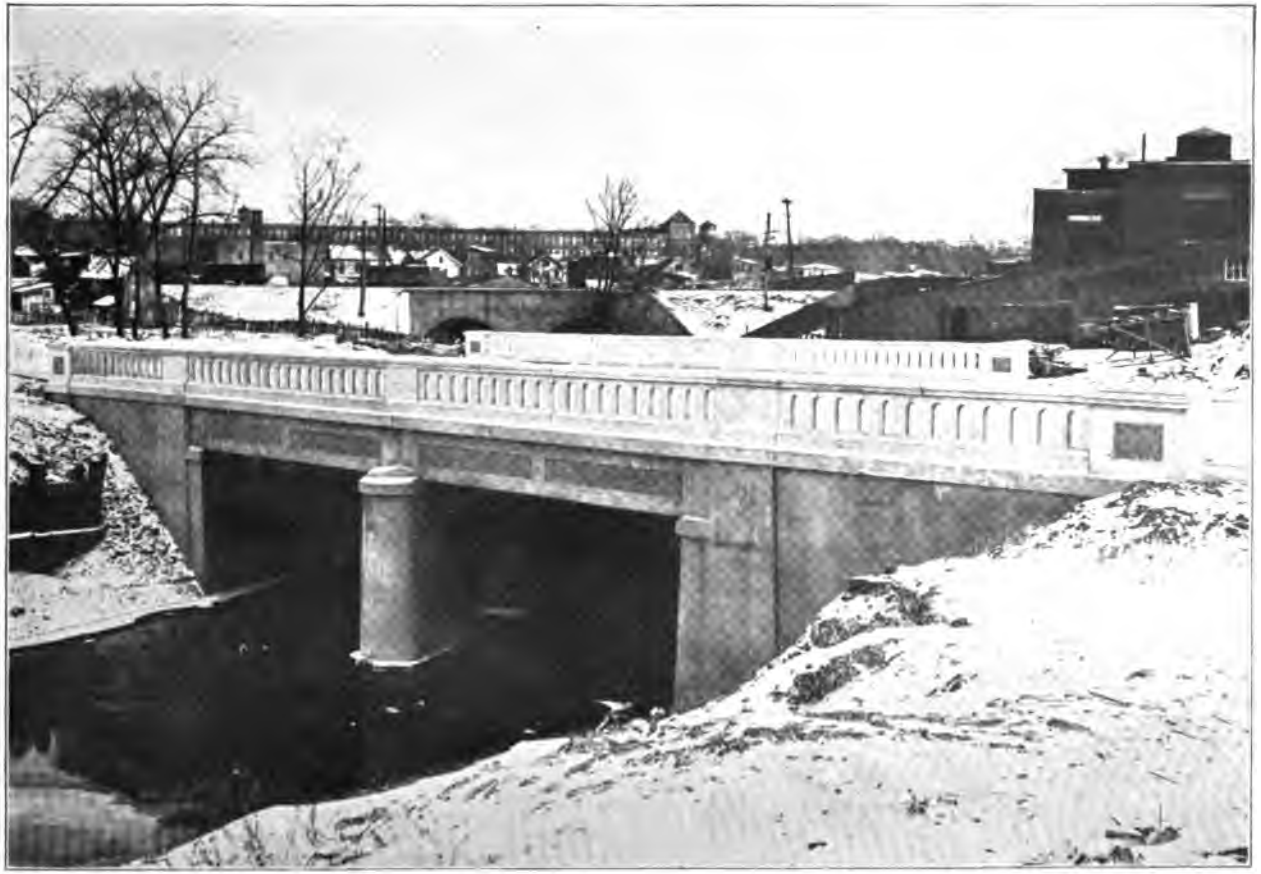
PAVING.

PERMANENT PAVEMENTS.

While the City of Hartford is empowered, by act of the Legislature, to lay four miles of permanent pavement without petition from abutting property owners, financial and labor conditions caused by the war have greatly limited this work. In fact the right to lay four miles has not as yet been exercised, not over two miles having been laid in one year. The severe weather condition of the past winter has emphasized the fact that macadam is not at all satisfactory, and it is hoped that the present era of high prices will not long continue as the City sorely needs a rapid and wide extension of permanent pavements.



OLD PILE TRESTLE BRIDGE ON LINE OF CAPITOL AVENUE EXTENSION, REPLACED BY CONCRETE-STEEL BRIDGE.



CONCRETE-STEEL BRIDGE ON CAPITOL AVENUE EXTENSION.

The streets paved with sheet asphalt were as follows:

Jewell, Trumbull and Wells Streets—Main Street to Pearl Street.
Morgan Street—Connecticut Boulevard to the Connecticut River Bridge.
Prospect Street—Park River Bridge to Sheldon Street.
Wethersfield Avenue—Bond Street south to the City Line.

The roadway of the new concrete bridge over the north branch of the Park River at Capitol Avenue Extension was paved with sheet asphalt.

The widening of Church Street roadway was fully completed in the block between Main Street and Trumbull Street, and between High Street and the Railroad Bridge, and partially between Trumbull Street and High Street before cold weather put a stop to the work in December of 1918. Early in the spring of 1919 the work was again started, new granite curb and cement walk laid in the new location between Trumbull Street and High Street, and the asphalt pavement extended to form a 35-foot roadway.

The completion of the improvements on Jewell, Trumbull and Wells Streets has provided a well-paved alternative route for traffic from the north section of the city through High Street and Ford Street to the lower end of Main Street. By this route the congested business section north of State Street may be avoided.

Although there was much opposition to the paving of Wethersfield Avenue, chiefly by the property owners affected by the assessments, this work was decided on and a contract let in August. Before the paving was laid the curbs were reset to a new grade, and to lines parallel with the street lines, providing a roadway 52 feet wide the entire distance from Bond Street to the City Line. As in the case of Windsor Avenue from Westland Street to the City Line, the track area was not paved by The Connecticut Company. This condition gives an unfinished appearance to the roadway. There is also in some places danger to vehicular traffic as the tracks in these sections do not conform with the finished pavement grade.

Granite block pavement was laid on Morgan Street from Front Street to Connecticut Boulevard under contract with O'Neil Brothers. The track area on this street was also paved with granite blocks.

In connection with the paving of Jewell Street, the City installed new granite curb along the south side from the Trumbull Street footbridge to the Ford Street Bridge, and reset the existing curb on Trumbull Street from Gold Street northerly, under contract with The Candee Stone Company. The resetting of curb on Wethersfield Avenue, and installing of large radius curb corners and headers were done by the City under a contract let to The Miller Sidewalk Company.

There are now 492,959.40 square yards of permanent pavement in the City of Hartford, having an aggregate street length of 20.76 miles. New permanent pavement laid in 1919 covered 39,365.3 square yards at a total cost of $133,482.94.

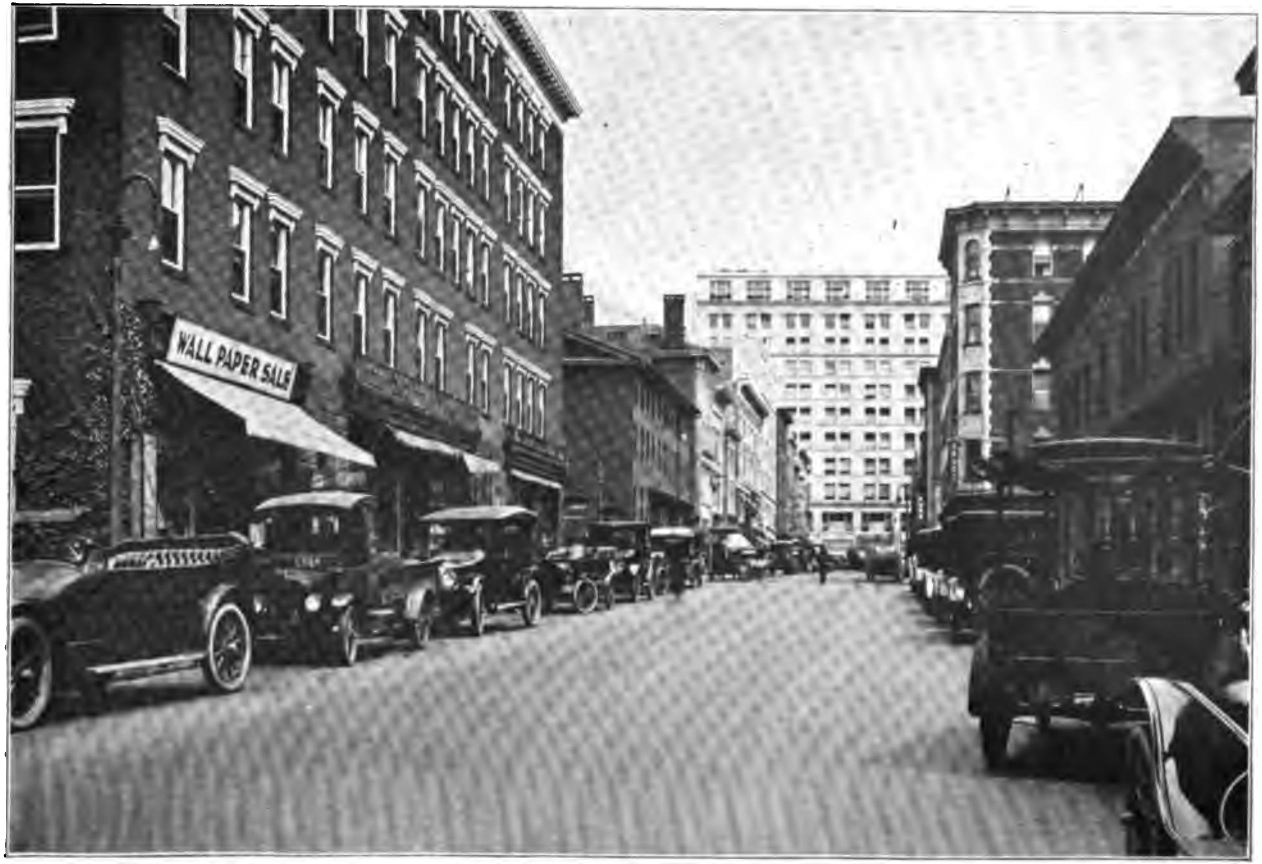
Tables giving various paving statistics are appended to this report.

RESURFACING.

The only resurfacing during 1919 was on Prospect Street between Grove and Atheneum Streets. Sheet asphalt was again laid, total cost being $2,549.66. The old asphalt removed from this street had been in service twenty-one years.

PAVING REPAIRS.

In making repairs the past season, 4139.49 square yards of sheet asphalt was laid, at a cost of $9,036.83. The average cost of repairs to streets paved with sheet asphalt, this cost being proportioned over the total number of square yards of asphalt pavement in the city on April 1, 1919 (Street railway area not included), was $0.021 per square yard. In addition to this work, repairs were made in a few places to granite block pavements and a small amount of concrete foundation was renewed.



EASTERLY END OF CHURCH STREET AFTER THE WIDENING.

PAVING PROPOSED FOR 1920.

Street	Section	Pavement
Arch Street,	Prospect Street to Front Street,	Asphalt
Charles Street,	whole length,	Asphalt
Connecticut Boulevard,	Ferry Street to Morgan Street,	Asphalt
North Street,	Village Street to the Railroad,	Asphalt
Prospect Street,	Park River Bridge to Atheneum Street,	Asphalt
Talcott Street,	Front Street to Connecticut Boulevard,	Granite Block
Winthrop Street,	whole length,	Asphalt

If the widening of Morgan Street is sufficiently advanced to permit, new paving will be laid on that street in connection with widening the roadway from Main Street to Front Street.

CORNERS CUT BACK TO LONGER RADII.

In connection with the paving work on Wethersfield Avenue all corners of intersecting accepted streets were cut back and curb of longer radii installed. Other intersections improved were as follows:

Prospect Street, N. E., N. W. and S. E. corners of Grove Street.
Prospect Street, N. corner of Atheneum Street.
Sheldon Street, N. E. and N. W. corners of Front Street.
Sheldon Street, S. E. corner of Woodbridge Street.
Wells Street, N. and S. corners of Mulberry Street.
Wells Street, S. corner of Gold Street.
Gold Street, E. and W. corners of Lewis Street.
Gold Street, N. E. corner of Trumbull Street.
Farmington Avenue, at Asylum Street.

In connection with the cutting back of the corner last named, radical changes in grade were made, curbing and walks relaid west of the corner on both Asylum Street and Farmington Avenue and the pavement relaid between the north curb and rail on Farmington Avenue in a section about 50 feet long, thus eliminating a dangerous depression and extremely steep cross-section on the pavement of Farmington Avenue adjacent to the corner.

In all 42 corners were improved in appearance and in safety for traffic.

TRACK WORK.

Track profile was furnished The Connecticut Company for the resurfacing of double tracks on Morgan Street between Front Street and the Connecticut River Bridge. In connection with this work the special work at Connecticut Boulevard was partly renewed. No general resurfacing of track was attempted on Wethersfield Avenue to conform to the grades of the City's section of paving. A section about 600 feet long from Roosevelt Street southerly to the Ball Grounds was, however, raised to meet the grade of the new pavement adjacent thereto.

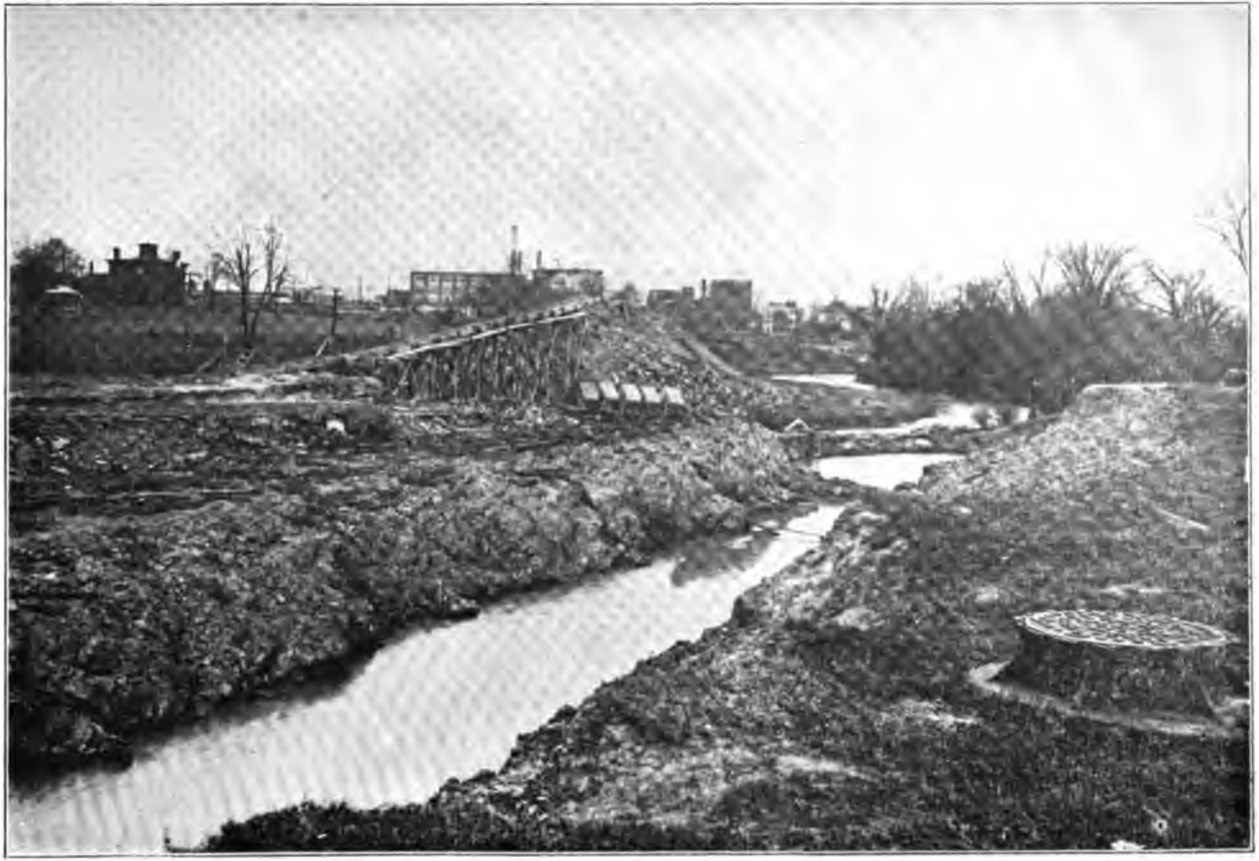
TRACK WORK PROPOSED FOR 1920.

The Connecticut Company will resurface tracks on Connecticut Boulevard in connection with the paving of that street between Ferry Street and Morgan Street.

UNDERGROUND SYSTEM.

Underground construction for public service utilities, which fluctuates in amount with the increase or decrease in amount of improved pavement laid, was somewhat below normal for the year. As is usually the case with streets near the center of the city, which are to be paved, the amount and the random arrangement of underground structures necessitates care and thought in assigning locations for new installations and enlargements. Jewell, Trumbull and Wells Streets were typical of this condition.

The various structures beneath the surface of the streets are of the greatest importance. Because these structures are out of sight and little in evidence, their significance is not so apparent as that of the more noticeable but not more important structures above ground. The locations of all sub-surface structures should be planned as far into the future as possible, and the entire two miles of sub-surface construction should be insisted upon each year. When business conditions become normal again it is evident that two miles of underground work cannot keep



PARK RIVER DIVERSION NEAR BARTHOLOMEW AVENUE EXTENSION.

up with four miles of paving work; hence the City should take advantage of the fact that less then four miles of paving work is being done, and by insisting upon the two miles of underground work, obtain more nearly a balance between these closely related improvements.

In addition to the evident necessity for developing a complete and up-to-date underground system, there is also the important fact that with the clay soil characteristic of Hartford, the longer time that intervenes between the installation of underground structures and the actual laying of the paving, the more satisfactory the paving will be.

To solve the problems, that arise in assigning locations for underground work in an efficient manner, a set of 246 maps drawn to a scale of 20 feet to an inch has been made to date showing the probable positions of underground structures. These maps show all sewers, water mains, gas mains, duct lines, street railway tracks, curb lines and street lines. The different types of structures are drawn with different colors, a special color for each type. In assigning locations in new streets, or streets which have recently been made public streets, a definite system is adhered to wherever possible. In case the public service corporations require large manholes in their duct line work (and this is usually the case), a specified maximum distance from the curb line is insisted upon, thus placing a portion of the manhole behind the curb line. This scheme does away with the inconvenience of having large manholes interfere with or prevent absolutely the laying of future new lines or enlargements between the duct line and the gas or water main.

During the past year about 50 new maps were made and the maps previously made were brought up to date. Plans were made of the streets to be paved and locations assigned for new work as early as possible to allow the installation of the underground work to precede the actual paving work by as long an interval as possible.

During the past season 5.8 miles of gas and water mains, and 3.8 miles of electrical duct lines were installed for which ninety underground locations were assigned; the total work being distributed over fifty-seven streets. At the present time the Hartford underground system comprises 156.7 miles of water mains, 156.6 miles of gas mains, 99.8 miles of duct lines and 153 miles of sewers.

SURVEYS.

Surveys were made for the Street Department, Park Department, High School and Public Building Commissions.

Line and grade was set for the construction and repair of sidewalks and curbing and for street grading.

MERESTONES.

Merestone is the local name for the highway bound or monument used to define the city streets. These are set on lines two feet within the street at corners, angle points and the beginning and ends of curves. During 1919 thirty new reinforced concrete merestones were made at the City Yard by employees of the department. Sixty-two new stones were set and eight old ones reset to new grade.

NEW STREETS.

Surveys were made and layouts prepared for the acceptance of Acton, Groton, Hillyer, Lisbon, Norwich, Pembroke, Sprague, Stonington and Windham Streets, for the extensions of Ann, Broad, Bartholomew, Brookfield, Clay and Nelson Streets, and for the widening of Ann, Arch and Morgan Streets. Surveys and maps were made for the proposed widening of Asylum, High and Main Streets.

SIDEWALK AND CURB LINES.

Layouts were prepared for curb and walk lines on Adelaide Street, Branford Street East, Bushnell Street, Capitol Avenue, Darien Street, Dart Street, Elizabeth Street, Hanmer Street, Maple Avenue, Newington Avenue, Otis Street, Wilmath Street and Woodstock Street.

BUILDING AND VERANDA LINES.

Layouts were prepared for the establishment of new building and veranda lines on Pope Park Highway No. 4, and on parts of Darien, Palm and Russell Streets.

OFFICE DIVISION.

PROPERTY MAPS.

Detail information concerning these maps will be found in last year's report.

During the year six new sections have been added, making a total of one hundred and forty-four sections. Two old sections which were at a scale of 100 feet to an inch were remapped into eight new sections at a scale 50 feet to an inch. Five tracings which had been worn out or torn were replaced by new tracings. House numbers were also placed on all new tracings.

The new buildings located, measured and plotted on these tracings numbered 550. This shows an increase in building operations of 74 buildings over the previous year.

Forty-four maps were made up to replace worn-out sections in our current set of property maps. The task of keeping this current set of property maps up to date developed into a strenuous undertaking during the year. This was due to the tremendous increase in realty transactions. One year ago twenty-nine hundred transfers were taken from the Town Clerk's records. During the past year we took off five thousand, nine hundred and seventy-five transfers. An increase of 100 per cent.

In connection with the verification of ownerships for municipal assessments considerable title searching was necessary to determine the fee in numerous mutual gangways. In connection with the widening of Morgan Street we assisted the Corporation Counsel in title searches.

A list of obsolete street names was compiled for the Town Clerk. This list will be added to the present list, and bound into the new Land Records indexes.

Twenty-four maps were plotted on the map book at the Town Clerk's office from plans filed there for record.

Grandview Terrace, Newbury Street, Walnut Street and Village Street were renumbered, and house number plans were made for new streets as developments required.

The usual sprinkling assessment was compiled. The addition being 2.53 miles. This assessment was explained in detail in the last annual report.

A new curb and sidewalk book was compiled.

The boundaries for 307 liens were described for the Street Department.

Three hundred and fifty-seven building and street lines were staked out and inspection of the lines made.

Three hundred and sixty-eight house number cards were issued.

Four hundred and seventy-seven drain layers' permits were given out, and five hundred and ten miscellaneous orders for work were received and attended to, besides the usual information required by the general public over our counter.

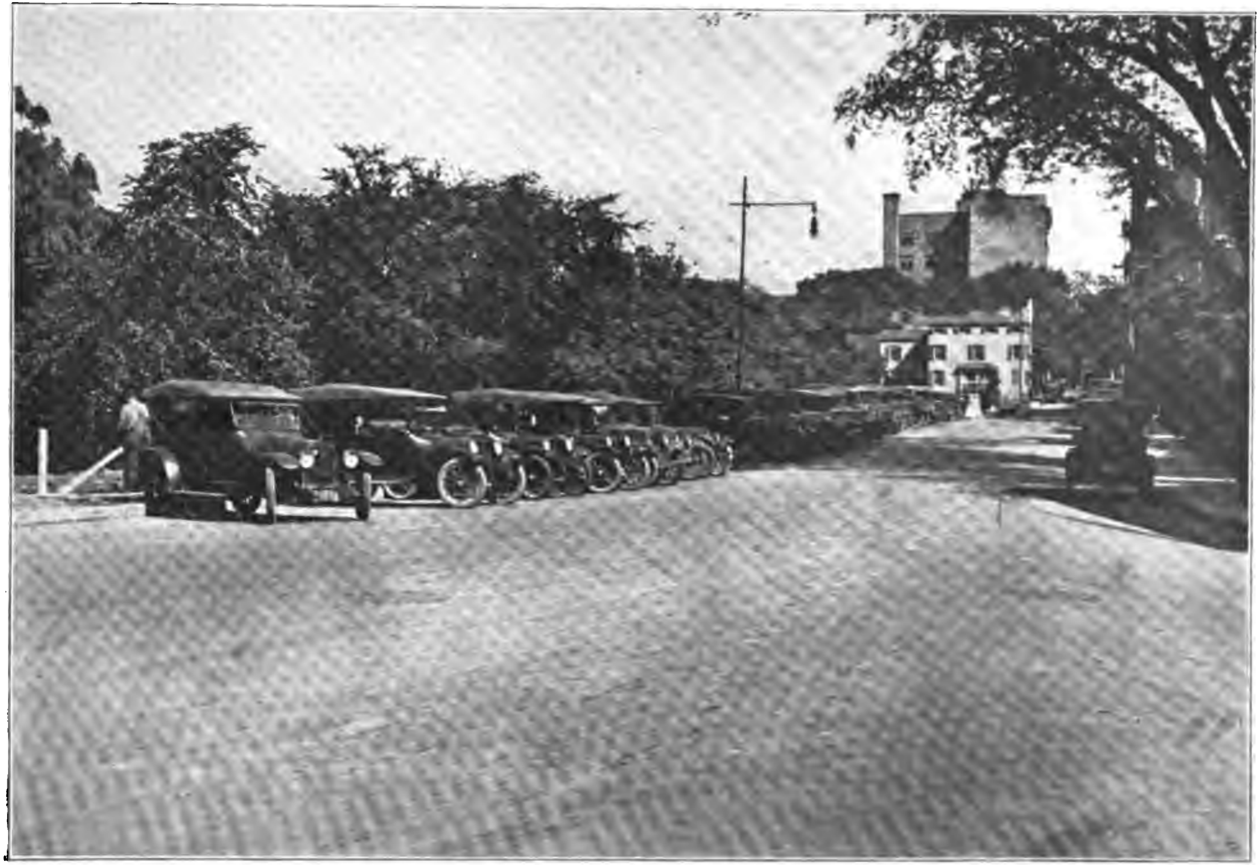
PRIVATE DRAINS.

The supervision of the laying of private drains is one of the duties of this Department governed by ordinance and by rules and regulations which have been adopted from time to time by the Board of Street Commissioners. All drain layers are licensed and bonded and no others are permitted to do this work.

A record of every inspection is kept on file and the location of the connection is plotted so that its position, depth and other facts of interest may be ascertained at any time, should such information be desired.

Fifty-two drain layers' licenses were issued during the past year. Some of these licenses were taken out by parties who make this work their sole occupation, some by plumbers who find it to their advantage to be in a position to lay drains and connections with the sewers, while others were issued to general contractors and to the several public service corporations.

During the year four hundred and fifty-eight permits were taken out by these licensed drain layers for work



JUNCTION OF WELLS AND HUDSON STREETS, SHOWING USE OF AUTOMOBILE PARKING SPACE.

varying in importance and magnitude from minor repairs to short extensions of main sewers.

The City takes the stand that all connections which enter the sewers to serve private interests must be cared for by the parties served and such owners must make any repairs necessary regardless of whether the trouble is located on private property or in the street.

While it is seldom necessary to resort to such steps, the license of one drain layer was suspended for a period during the past season.

Several years' experience has demonstrated that the system followed is a guarantee against faulty construction and works to the mutual benefit of the private owners and the City at large.

TESTING LABORATORY.

During the year the various tests on municipal supplies such as coal, asphalt, asphaltic mixtures, fluxes, road oils, cements, sand, stone, gravel, brick, rubber fire hose, insulated wire, joint fillers, soap, cylinder oils, lubricants, greases, gasoline, tree spraying compounds and electrolytes were made in this Department. Advice and suggestions have also been given to other city departments. As usual the greatest number of tests were made on asphalt for plant control.

In several instances the tests showed the article under examination was of an inferior quality and not up to the requirements specified by the City. As is customary the proper official, for whom the test was made, was promptly notified. In one department alone material worth thousands of dollars was rejected because of its inferior quality as shown by tests in this laboratory.

Besides the usual routine work studies and investigations were made of new methods of testing materials.

MUNICIPAL ASSESSMENTS.

Most assessments for public improvements are prepared by this Department and the work involved is considerable in the course of a season.

The various assessments with which we are constantly concerned may be classified as follows:

Assessments for Street Sprinkling.

Assessments for Sewers.

Assessments for Improved Pavements.

Assessments for the Layout of New Streets in Undeveloped Sections.

Assessments for Street Extensions and Street Widening in Built-up Sections.

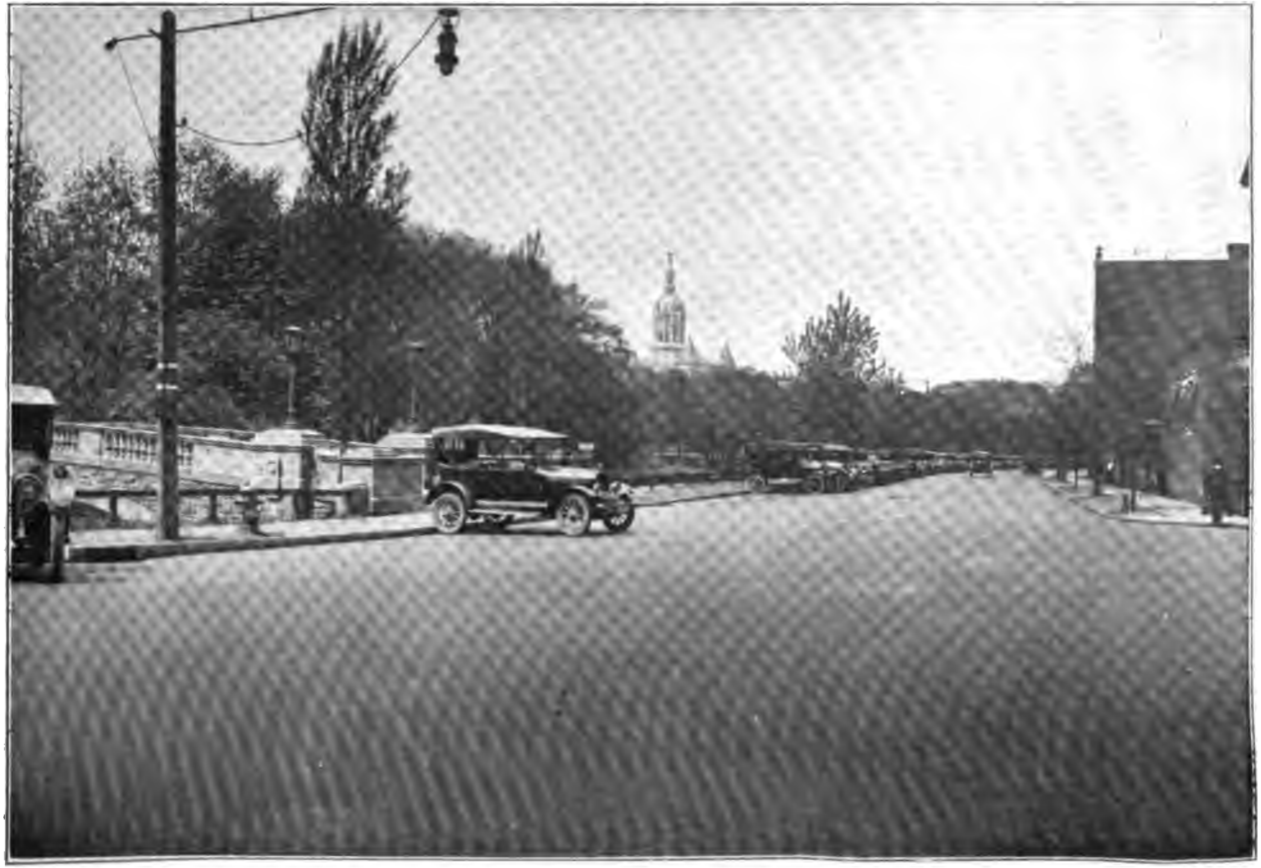
STREET SPRINKLING.

In Hartford it is customary to assess for Street Sprinkling, or oiling or flushing as the case may be. The cost for this work for the fiscal year ending March 31, 1920, was $61,538.61. The rates were $0.06 per foot frontage for paved streets flushed every night, and $0.045 for paved streets flushed less than every night, and $0.045 for macadam streets. In all 111 miles of streets or 222 miles of street frontage figured in the assessment. The assessment as prepared by the Department of Engineering filled 700 legal cap typewritten pages, and contained 13,448 names of property owners.

Of late years it has been the custom to substitute oil for water on most macadam streets, and especially where sand is added the mat which is formed surely protects the road and many times does away with the necessity of redressing the road and, therefore, might better be charged up to maintenance instead of being assessed.

SEWER ASSESSMENT.

The assessment for sewers is based upon the actual cost of the work and the system of applying a uniform flat rate is not used. In the case of trunk sewers and interceptors the City frequently assumes a large portion of the assessment. This portion in some cases represents the excess cost of the sewer over what an ordinary type of sewer would cost the individual owner. Where a large sewer is called for in order to take care of the storm water



AUTOMOBILE PARKING ON WIDENED JEWELL STREET.

from an extensive area, the territory draining to the sewer is charged an outlet assessment, usually levied at so much per acre where no sub-division into streets and lots is on record. In the case of rebuilding an old local sewer the City usually assumes one-half the cost and the remaining one-half is assessed against abutting property.

IMPROVED PAVEMENT ASSESSMENT.

In the case of improved pavements the City pays one-third of the total cost, and two-thirds of the cost is assessed against the abutting property, the trolley company paying the entire cost for the pavement included within the tracks and two feet outside of the outer rails.

When a business street which bears only local traffic is paved the customary method of assessment appears fair, but it is a question whether or not such a division of costs should apply on main highways bearing inter-city or even inter-state traffic.

Answers to a questionnaire sent out to American Cities by the Secretary of the Conference of Mayors of the State of New York, and as tabulated by Nelson P. Lewis, Chief Engineer of the Board of Estimate and Apportionment of the City of New York, disclosed the facts that 45% of the cities heard from assess the full cost of the pavement against the property owners; 15% assess two-thirds of the cost; 9% assess one-half of the cost and 15% make no assessment against abutting property.

A similar variation exists in regard to paying for repaving a street. Some cities allow the assessment to be paid in installments. In Hartford if assessments are not paid within a stated time a lien is placed against the property and 4% interest charged. I believe that the method of assessment for improved paving as prescribed by our charter is faulty and inequitable. It differs from the method of assessment established for all other public improvements in preventing the Board of Street Commissioners from extending the assessment to affect all properties benefited by the laying of the pavement.

Obviously when a main thoroughfare of considerable length is paved, properties on tributary streets are also benefited to a considerable distance from the main street, and should, in equity, bear a portion of the cost of the improvement. Under the charter provision, however, the Board of Street Commissioners has no option but to confine the assessment to those properties fronting on the street which is paved. An amendment to the charter, giving more latitude in this respect, should be sought at the next session of the legislature.

NEW STREETS AND STREET EXTENSIONS IN UNDEVELOPED SECTIONS.

Such streets may be asked for by promotors of real estate and by them dedicated, in which case the assessments of damages and benefits may be nominal and balance each other. The streets may be proposed by the Commission on the City Plan to safeguard the city's future growth and perhaps be taken against the owner's wishes. When it seems necessary and logical, the land taken for street purposes is paid for and benefits assessed.

ASSESSMENTS FOR STREET EXTENSIONS AND STREET WIDENINGS IN BUILT-UP SECTIONS.

Hartford has been involved in extensive street extensions and street widenings in the last few years which in the aggregate have cost many hundreds of thousands of dollars. In fact, at a recent city election the people were asked to vote on the question of appropriating practically $1,000,000 for this purpose. These costly street widenings have all been in the central section of the city and have required the complete demolishing of substantial buildings and moving or cutting off the fronts of numerous others. The widenings have varied from a minimum of 10 feet to a maximum of 45 feet. As an example of what is involved I might go into detail in regard to the assessment of damages and benefits for the widening of Church Street in the block between Main Street and Trumbull Street. This street which extends from Main Street to Railroad Station is subject to heavy traffic and before the widening the block referred to was only 35 feet between the buildings and 22 feet between the curbs.

Any busy street should at least be wide enough between curbs to allow for cars to be parked at both sides, leaving room between for a line of traffic in either direction. This condition cannot be accommodated in a space less than 30 feet, and several feet more than this is desirable.

After mature deliberation it was decided to widen Church Street 15 feet and to cut 7 feet off the fronts of the buildings on the south side and eight feet from those on the north. Some of the buildings were old and inferior, but others were more modern, substantial and of four or five stories in height. The relative cost and merit in moving the buildings rather than cutting off the fronts was considered and two large five-story masonry buildings were moved back to conform to the new street lines. It can be readily appreciated that cutting off 8 feet from a business block might call for extensive alterations and changes in the interior arrangements to fit it for its best use under the new conditions. To illustrate, if the front room were say 12 feet in depth then after taking the 8 feet there would be but 4 feet left which would be out of the question and would likely call for a complete revamping of the interior.

In a case of this kind there are several elements of damage such as:

Damage for land taken.
Damage for cost of remodeling.
Damage for interruption to business and to stock.
Damage for loss of rent during alterations.
Damage to lessees or tenants.
Damage for permanent loss of income.

When making up this assessment the Board of Street Commissioners called in expert real estate men and an experienced architect builder to advise them and to have them to defend the portion of the assessment with which they were concerned should the question reach the courts, as their experience led them to believe might be the case.

The Department of Engineering coöperated with the Board and with the special committees and furnished maps, measurements and every assistance which was desired, and in fact assembled and prepared the assessment for the records and for publication.

It was not difficult for the real estate committee to arrive at the value of the land appropriated. This value hinged upon the value of the land before the widening, its frontage, its depth and the relation of the area and depth taken to the area and depth remaining. For example: deducting 8 feet from a narrow lot, say 60 feet in depth, would be a material and serious damage while the same amount deducted from a lot two hundred feet deep might not affect its sale value in the slightest.

The question of the amount which should be allowed for structural damage required considerable work and study, involving the drawing of plans of the buildings as they stood and then altering these plans to fit the new conditions. The owners did not know in every case how they wanted their buildings rearranged to best serve their purpose and in such cases the award was made on the basis of a logical and reasonable plan and for an amount equivalent to a contractor's bid for the work required.

Where a business was conducted which would suffer during alterations a sum was arrived at to cover this item. This figure was more or less arbitrary as such a damage could not be accurately fixed in advance.

It was estimated in the case of Church Street that the construction changes would require six months and that during a portion of this time some of the tenants would have to vacate and for this reason a sum equivalent to one-half of six months' rent was awarded. In some cases leases were in force and where these were legally recorded and binding they were recognized in making the assessments, since a lease represents a certain equity in the property and therefore must be considered. It was not known whether it would be claimed that the taking by the City of rented space would break the lease or whether the landlord would reduce the rent because of the lessened floor space or raise it because of the improvement. Realizing that an adjustment between the landlord and the lessee would be called for, a certain portion of the total damage was awarded jointly to the lessor and lessee, which made it necessary for the parties to reach an agreement before the City would pay over the money due.

It was found that after paying for the land taken and for the structural damage, etc., the property owners had not been properly compensated, due to the fact that there was a permanent loss in income or revenue from the property which was not offset by the return on the money allowed for the land taken. In such cases a special award was made consisting of a sum of money which capitalized at 5% would compensate for this loss.

The cost of relaying or rebuilding the curb and sidewalks was included as a special item of damage.

Benefits amounting to 15% of the land value were found, which, although objected to at the time, have since proved to be very moderate and in fact but a fraction of the increased value in the properties brought about by the improvement. The structural changes were made and the roadway widened and paved in one season.

A widening of this nature has an immediate and sweeping effect for the reason that the front of nearly every building was removed and in the place of old and unattractive structures modern fronts were built which dressed up the street and made it look prosperous and inviting.

Fortunately in Hartford it is possible to propose and carry out public improvements of this nature, objections from the property owners affected notwithstanding, and to settle the differences in court some time later. In fact in connection with several of these improvements which are being enjoyed today court cases are now in progress and have required the attention of the department during the past winter.

I respectfully recommend that the program of street widening and extension in the business district carried on by direction of your Honorable Court during the past four years, be continued in such extent as circumstances permit. The widening of Main Street, between Windsor and Pleasant Streets, as outlined to the Board of Street Commissioners last winter, and by them recommended to your Court could be secured at comparatively small cost to the City and would result in great benefit to the abutting property, while securing relief from the intolerable congestion to business and traffic which now exists.

In conclusion I take this opportunity to testify to the pleasant and helpful relations existing between this department and the several other municipal departments, boards and officials and to express appreciation of the loyalty and earnest endeavors of my fellow employees in this department.

Respectfully submitted,

ROSCOE N. CLARK,

City Engineer.

TABLES

SEWER STATISTICS FOR YEAR ENDING MARCH 31, 1920.

Sewers in use March 31, 1919, ...151.43 miles
Sewers built 1919-1920, ...7,219.3 feet = 1.37 miles
Sewers removed 1919-1920, ... 421.6 feet = 0.08 miles

Net increase in sewers in use, .6,797.7 feet = 1.29 miles

Sewers in use March 31, 1920, ...152.72 miles

SEWERS BUILT IN 1919-1920 CLASSIFIED BY SIZES AND MATERIALS.

Vitrified Tile, 8 inch,	887.7 feet
Vitrified Tile, 10 inch,	2003.3 feet
Vitrified Tile, 12 inch,	836.1 feet
Vitrified Tile, 15 inch,	1671.0 feet
Vitrified Tile, 18 inch,	0.0 feet
Vitrified Tile, 20 inch,	0.0 feet
Vitrified Tile, 24 inch,	876.3 feet
	6274.4 feet
Vitrified Segment Block, 48 inch,	421.6 feet
Reinforced Concrete,	523.3 feet
	7219.3 feet

SEWERS BUILT IN 1919-1920, CLASSIFIED BY METHOD OF PAYING COST.

	Cost	Per Cent	Length in Feet	Per Cent
Entire Cost assumed by City,	$15,556.17	26.4	1006.3	13.9
Cost partly met by City and Partly Assessed,	23,164.20	39.3	523.3	7.2
Entire Cost Assessed,	5,738.60	9.7	1661.0	23.1
Built and Paid for by Private Parties,	14,491.01	24.6	4028.7	55.8
	$58,949.98	100.0	7219.3	100.0

RECORD OF PERMANENT PAVEMENTS IN HARTFORD TO APRIL 1, 1920.

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	North side and tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Albany Avenue	East St. to Magnolia St.	Paved	Sheet Asphalt	D. T.	1.69	2.8845	Nov. 21, 1914	Nov. 21, 1919
Albany Avenue	Magnolia to Woodland St.	Paved	Sheet Asphalt	D. T.	1.58	2 6600	Jan. 22, 1917	Jan. 22, 1922
Albany Avenue	Woodland to Baltimore St.	Paved	Sheet Asphalt	S. & D.	1.81	3.7711	May 8, 1918	May 8, 1923
Allyn Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	Jun. 12, 1899	June 12, 1904
Allyn Street	Trumbull St. to Union Pl.	Resurfaced	Sheet Asphalt	No	1.19	By City	Jan. 9, 1918	Jan. 9, 1923
Amer. & Cent. Rows	East of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Amer. & Cent. Rows	East of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum St. to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Ann Street	Allyn St. to Main St.	Paved	Sheet Asphalt	No	1.85	2.8726	Aug. 22, 1917	Aug. 22, 1922
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Asylum Street	Spruce St. to Farm'ton Av.	Tracks relaid	Granite Block	D. T.	......	....	1911	....
Asylum Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce St. to Farm'ton Av.	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford St. to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Asylum Street	Main St. to Spruce St.	Repaved	Sheet Asphalt	S. & D.	2.28	By City	Oct. 12, 1908	Oct. 12, 1918
Asylum Street	Spruce St. to Garden St.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Spruce St. to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Hopkins St. to Farm'ton Av	S. side resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Asylum Street	Garden St. west to Header	N. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Jun. 23, 1914	June 23, 1919
Atheneum Street	Prospect St. to Main St.	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Atheneum St., South	Main St. to Prospect St.	Paved	Sheet Asphalt	No	1.60	By City	Nov. 2, 1915	Nov. 2, 1920
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1897	....
Broad Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Capitol Avenue	Lafayette St. to Park River	Paved	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 26, 1905
Capitol Avenue	Lafayette St. to Broad St.	N. side resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Lafayette St. to Broad St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Broad St. to Park River	Both sides resurf'd	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.	......	....	1895	....
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	.65	By City	Dec. 6, 1911	No guarantee
Capitol Avenue	Park Ter. to Sigourney St.	Wid'd and repav'd	Sheet Asphalt	D. T.	1.66	By City	Jan. 22, 1917	Jan. 22, 1922
Capitol Avenue Ext'n	Bridge over Park River	Paved	Sheet Asphalt	No	1.60	By City	Jan. 13, 1920	Jan. 13, 1925

RECORD OF PERMANENT PAVEMENTS IN HARTFORD TO APRIL 1, 1920 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Central Row	Main St. to Post Office	Paved	Block Asphalt	D. T.	$3.04	$5.5600	Oct. 12, 1896	Oct. 12, 1901
Central Row	Main St. to Post Office	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Church Street	Main St. to Trumbull St.	Paved	Sheet Asphalt	No	2.59	2.1163	Nov. 8, 1897	Nov. 8, 1902
Church Street	Main St. to Trumbull St.	Resurfaced	Sheet Asphalt	No	1.67	By City	July 28, 1909	July 28, 1914
Church Street	Main St. to Trumbull St.	Wid.& Part Resurf	Sheet Asphalt	No	2.15	By City	Jan. 3, 1919	No guarantee
Church Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	1.58	1.8608	Jan. 22, 1917	Jan. 22, 1922
Church Street	Trumbull St. to High St.	Part widened	Sheet Asphalt	No	2.15	By City	Jan. 8, 1919	No guarantee
Church Street	Trumbull St. to High St.	Part widened	Sheet Asphalt	No	2.15	By City	Jan. 13, 1920	No guarantee
Church Street	High St. to Union Place	Widened	Sheet Asphalt	No	2.15	By City	Jan. 8, 1919	No guarantee
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Church Street	Union Pl. to Spruce St.	Resurfaced	Sheet Asphalt	No	1.39	By City	Sep. 29, 1913	Sep. 29, 1918
Church Street	Spruce St. westerly	Paved	Granite Block	No	3.63	4.1578	Oct. 15, 1913	Oct. 15, 1914
Connecticut Boulev'd	State St. to Ferry St.	Paved	Sheet Asphalt	D. T.	1.58	2.8939	Jan. 22, 1917	Jan. 22, 1922
Farmington Avenue	Asylum Av.to Woodland St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Avenue	Asylum Av.to Sigourney St.	Full width resurf.	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Both sides resurf'd	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Avenue	Sig'ney St. to Woodland St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1909	....
Farmington Avenue	Woodland to Tremont St.	Paved	Sheet Asphalt	D. T.	2.59	3.7618	Dec. 12, 1910	Dec. 12, 1915
Farmington Avenue	Tremont St.to Prospect Av.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ferry Street	Front St. to foot of Hill	Paved	Sheet Asphalt	No	1.85	1.8246	Aug. 22, 1917	Aug. 22, 1922
Ferry Street	Foot of Hill to Conn. Bl'vd	Paved	Granite Block	No	4.03	3.9341	Dec. 18, 1917	Dec. 18, 1918
Ford Street	Pearl St. to Asylum St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sep. 26, 1898	Sep. 26, 1903
Ford Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1913
Front Street	State St. to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Front Street	State St. to Morgan St.	Paved	Sheet Asphalt	No	2.15	2.8721	Dec. 5, 1913	Dec. 5, 1918
Gold Street	Main St. to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sep. 11, 1898	Sep. 11, 1903
Grove Street	Main St. to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect St. to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No	......	....	1898	....
Hamilton Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Haynes Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church St. to Main St.	Resurfaced	Sheet Asphalt	No	1.27	By City	May 19, 1911	May 19, 1916
High Street	Church St. to Main St.	Widened	Sheet Asphalt	No	3.48	By City	Jan. 8, 1919	Jan. 8, 1924
High Street	Asylum St. to Church St.	Resurfaced	Sheet Asphalt	No	0.89	By City	June 23, 1914	June 23, 1919

Hopkins Street	Broad St. to Asylum St.	Paved	Sheet Asphalt	No	$2.58	$2.3865	June 12, 1899	June 12, 1904
Hudson Street	Bridge over Park River	Paved	Sheet Asphalt	No	1.99	By City	Jan. 8, 1919	Jan. 8, 1924
Huyshope Avenue	Charter Oak Av. to Masseek	Paved	Sheet Asphalt	S. T.	3.43	4.4663	Aug. 14, 1918	Aug. 14, 1923
Jewell, Trumbull and Wells Streets	Main St. to Pearl St.	Paved	Sheet Asphalt	No	2.91	5.436	Jan. 13, 1920	Jan. 13, 1925
Kilbourn Street	Charles St. to Conn. Bl'vd	Paved	Granite Block	No	4.03	6.2049	Dec. 18, 1917	Dec. 18, 1918
Kilbourn Street	Front St. to Charles St.	Paved	Sheet Asphalt	No	1.85	2.0632	Aug. 22, 1917	Aug. 22, 1922
Kinsley Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903
Laurel Street	Bridge over Park River	Brick paved	Brick	S. T.	......	....	1894	....
Laurel Street	Bridge over Park River	Repaved	Brick	S. T.	2.40	By City	July 11, 1900	....
Lewis Street	Pearl St. to Gold St.	Paved	Sheet Asphalt	No	2.51	1.808	Sep. 24, 1900	Sep. 24, 1905
Main Street	Arch St. to Morgan St.	Paved	Sheet Asphalt	D. T.	2.49	5.4887	Dec. 14, 1896	Dec. 14, 1901
Main Street	Morgan St. to Windsor Ave.	Paved	Sheet Asphalt	D. T.	2.70	4.6395	Oct. 11, 1897	Oct. 11, 1902
Main Street	Wyllys St. to Arch St.	Paved	Sheet Asphalt	D. T.	2.66	4.5750	Oct. 25, 1897	Oct. 25, 1902
Main Street	West of tracks along east side of South Green	Resurfaced	Sheet Asphalt	D. T.	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Across S. end of So. Green	Resurfaced	Sheet Asphalt	No	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Wyllys to Charter Oak Ave.	E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Main Street	State St. north	Tracks repaved	Wood Block	D. T.	......	....	1903	....
Main Street	Eng. House 1 to Buck'gham	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1916	....
Main Street	Eng. House 1 to Wells St.	W. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Char. Oak Av. to Atheneum	E. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Buckingham St. to Atheneum St., South	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1916	....
Main Street	Atheneum St. south to Pearl	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1917	....
Main Street	Jefferson St. to Park St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Windsor St. to Windsor Av.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Jefferson St. to Park St.	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1912	....
Main Street	Wyllys to N. end South Gr'n	Tracks resurfaced	Sheet Asphalt	D. T.	......	....	1908	....
Main Street	Park St. to Eng. House No. 1	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Triangle N. end South Gr'n	Resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Atheneum St. to Cent. Row	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	State St. to Windsor St.	E. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Wells St. to Ann St.	W. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Ann St. to Lumber St North 200' on Windsor Ave.	Whole St. resurf'd E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Maple Avenue	Congress St. to Morris St.	Paved	Sheet Asphalt	D. T.	1.58	2.6300	Jan. 22, 1917	Jan. 22, 1922
Market Street	State St. to Temple St.	Paved	Sheet Asphalt	S. T.	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1903
Market Street	Temple St. to Morgan St.	Paved	Sheet Asphalt	S. T.	2.56	2.3270	Oct. 9, 1899	Oct. 9, 1904
Market Street	Morgan St. to Pleasant St.	Paved	Sheet Asphalt	No	1.69	2.0173	Nov. 21, 1914	Nov. 21, 1919

RECORD OF PERMANENT PAVEMENTS IN HARTFORD TO APRIL 1, 1920 (*Continued*).

Street	*Location*	*Description*	*Kind*	*Tracks*	*Price per sq. yd.*	*Assessment per front ft.*	*Final Payment*	*Guarantee Expires*
Market Street	State St. to Morgan St.	W. side and tracks resurfaced	Sheet Asphalt	S. T.	$1.65	By City	Aug. 4, 1909	Aug. 4, 1914
Market Street	Temple St. to Morgan St.	E. side resurfaced	Sheet Asphalt	S. T.	0.89	By City	June 23, 1914	June 23, 1919
Market Street	State St. to Morgan St.	Tracks resurfaced	Sheet Asphalt	S. T.	......	....	1914	....
Marsh Court	Market St. to Village St.	Paved	Sheet Asphalt	No	2.15	$1.1455	Dec. 5, 1913	Dec. 5, 1918
Morgan Street	Market St. to Main St.	Paved	Granite Block	S. T.	3.09	2.1525	Dec. 27, 1898	Aug. 27, 1899
Morgan Street	Intersection with Front St.	Paved	Granite Block	D. T.	......	By City	Dec. 5, 1913	No guarantee
Morgan Street	Front St. to Market St.	Paved	Sheet Asphalt	D. T.	2.15	3.1641	Dec. 5, 1913	Dec. 5, 1918
Morgan Street	Front St. to Conn. Boulvd.	Paved	Granite Block	D. T.	5.32	15.4432	Dec. 8, 1919	Dec. 8, 1920
Morgan Street	Conn. Boulevard to Bridge	Paved	Sheet Asphalt	D. T.	2.91	12.0769	Jan. 13, 1920	Jan. 13, 1925
Mulberry Street	Main St. to Wells St.	Paved	Sheet Asphalt	No	2.55	2.6970	Nov. 14, 1898	Nov. 14, 1903
North Street	Windsor St. to Village St.	Paved	Sheet Asphalt	No	1.85	2.0418	Aug. 22, 1917	Aug. 22, 1922
Park Street	Main St. to Zion St.	Paved	Sheet Asphalt	D. T.	1.58	1.6267	Jan. 22, 1917	Jan. 22, 1922
Park Street	Under Railroad Bridge	Paved	Granite Block	S. T.	3.35	By City	Nov. 27, 1899	July 27, 1900
Park Street	Under Railroad Bridge	Relaid	Granite Block	S. T.	1.35	By City	Oct. 4, 1910	No guarantee
Park Street	Under Railroad Bridge	Repaved	Granite Block	D. T.	......	By Railroad	1912	....
Park Street	Bridge over Park River	Paved	Sheet Asphalt	D. T.	......	....	1898	....
Park Street	Bridge over Park River	Relaid	Sheet Asphalt	D. T.	......	By Railroad	1912	....
Pearl Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	2.89	3.8380	July 22, 1895	July 22, 1900
Pearl Street	Main St. to Ford St.	Repaved	Sheet Asphalt	S. T.	2.70	By City	Sep. 10, 1908	Sep. 10, 1913
Pearl Street	Main St. to Ford St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Pleasant Street	Winthrop St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.3373	July 11, 1898	July 11, 1903
Pleasant Street	Winthrop to Windsor St.	Paved	Granite Block	No	4.03	5.2958	Dec. 18, 1917	Dec. 18, 1918
Pleasant Street	Winthrop St. to Railroad	Paved	Sheet Asphalt	No	2.15	2.7830	Dec. 5, 1913	Dec. 5, 1918
Portland Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	3.43	3.5832	Jan. 8, 1919	Jan. 8, 1924
Pratt Street	Main St. to Trumbull St.	Paved	Brick	No	......	By City	1892	....
Pratt Street	Main St. to Trumbull St.	Surfaced	Sheet Asphalt	No	1.68	1.4285	Aug. 14, 1899	Aug. 14, 1904
Pratt Street	Main St. to Trumbull St.	Repaved	Sheet Asphalt	No	2.19	By City	Nov. 26, 1917	Nov. 26, 1922
Prospect Street	Atheneum St. to Cent. Row	Paved	Sheet Asphalt	No	2.55	2.5256	July 25, 1898	July 25, 1903
Prospect Street	Grove St. to Central Row	Resurfaced	Sheet Asphalt	No	1.27	By City	Oct. 23, 1912	Oct. 23, 1917
Prospect Street	Grove St. to Atheneum St.	Resurfaced	Sheet Asphalt	No	1.95	By City	Jan. 13, 1920	Jan. 13, 1925
Prospect Street	Bridge over Park River	Paved	Sheet Asphalt	No	1.99	By City	Jan. 8, 1919	Jan. 8, 1924
Prospect Street	Park River to Sheldon St.	Paved	Sheet Asphalt	No	2.91	6.7353	Jan. 13, 1920	Jan. 13, 1925
Sequassen Street	Hupshope Av. to foot of hill	Paved	Sheet Asphalt	No	1.77	3.3817	Dec. 18, 1917	Dec. 18, 1922
Sequassen Street	Ft. of hill to Van Dyke Av.	Paved	Granite Block	No	4.03	3.1669	Dec. 18, 1917	Dec. 18, 1918
Sheldon Street	Main St. to Union St.	Paved	Sheet Asphalt	No	2.20	2.5747	Oct. 4, 1911	Oct. 4, 1916
Sheldon Street	Union St. to Commerce St.	Paved	Sheet Asphalt	No	2.16	3.0100	Oct. 23, 1912	Oct. 23, 1917

Sheldon Street	Commerce St. to V. Dyke Av	Paved	Sheet Asphalt	No	$1.77	$2.2672	Dec. 18, 1917	Dec. 18, 1922
Spruce Street	Asylum St. to Church St.	Paved	Sheet Asphalt	No	2.51	3.0163	Oct. 1, 1900	Oct. 1, 1905
Spruce Street	Church St. northerly	Paved	Granite Block	No	3.63	4.8221	Oct. 15, 1918	Oct. 15, 1914
State Street	Main St. to Commerce St.	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
State Street	City Hall to Main St.	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. westerly	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. to Conn. Boul'v'd	Repaved	Sheet Asphalt	D. T.	2.16	By City	Dec. 9, 1912	Dec. 9, 1917
State Street	Conn. Boulv'd to Commerce	Covered	Macadam	No	......	By City	1908	....
State Street	Front St. to City Hall	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Talcott Street	Market St. to Main St.	Paved	Granite Block	No	3.09	2.7184	Sep. 26, 1898	May 26, 1899
Talcott Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.75	2.7184	Sep. 26, 1898	Sep. 26, 1903
Talcott Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	1.7221	Nov. 21, 1914	Nov. 21, 1919
Temple Street	Main St. to Market St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Temple Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	2.7883	Nov. 21, 1914	Nov. 21, 1919
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	E. side and tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1913
Trinity Street	Capitol Ave. to North end of Bridge	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27, 1898	June 27, 1903
Trumbull Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	No	1.55	By City	Dec. 30, 1915	Dec. 30, 1920
Trumbull Street	Church St. to Pratt St.	Resurfaced	Sheet Asphalt	No	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Pearl St. to Hicks St.	Paved	Granite Block	No	3.56	5.4946	Nov. 22, 1915	Nov. 22, 1916
Union Place	Asylum St. to Church St.	Paved	Granite Block	No	3.37	....	1894	....
Van Dyke Avenue	Sheldon St. to Masseek St.	Paved	Sheet Asphalt	No	1.77	2.1047	Dec. 18, 1917	Dec. 18, 1922
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Village Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.55	1.3329	Dec. 30, 1915	Dec. 30, 1920
Wethersfield Avenue	Wyllys St. to Bond St.	Paved	Sheet Asphalt	D. T.	1.55	2.3724	Dec. 30, 1915	Dec. 30, 1920
Wethersfield Avenue	Bond St. to City Line	Paved	Sheet Asphalt	D. T.	3.04	4.6428	Nov. 21, 1919	Nov. 21, 1924
Windsor Avenue	Main St. to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sep. 11, 1899	Sep. 11, 1904
Windsor Avenue	Albany Ave. to Mather St.	W. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	July 21, 1914	July 21, 1919
Windsor Avenue	E. side Tunnel to Canton	Resurfaced	Sheet Asphalt	D. T.	1.99	By City	Jan. 9, 1918	Jan. 9, 1923
Windsor Avenue	Main St. to Canton St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1907	....
Windsor Avenue	Canton St. to Capen St.	Tracks relaid	Sheet Asphalt	D. T.	......	....	1910	....
Windsor Avenue	Capen St. to Westland St.	Paved	Sheet Asphalt	D. T.	1.81	2.2346	May 8, 1918	May 8, 1923
Windsor Avenue	Westland St. to City Line	Paved	Sheet Asphalt	D. T.	3.43	4.1037	Jan. 8, 1919	Jan. 8, 1924
Windsor Street	Main St. to Park.	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903
Windsor Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.69	2.5563	Nov. 21, 1914	Nov. 21, 1919

Note—Price given, except for resurfacing, is for completed pavement (asphalt and concrete, exclusive of excavation).

PERMANENT PAVEMENTS IN HARTFORD APRIL 1, 1920

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Albany Avenue	Windsor Av. to Baltimore St	D. T.	44683.00	....	....	....	....	1.48
Allyn Street	Trumbull St. to Union Place	No	6041.00	....	....	....	....	0.29
Amer. & Cent. Rows	East of Post Office	D. T.	....	1885.00	....	....	....	0.03
Ann Street	Asylum St. to Main St.	No	6647.70	....	....	....	....	0.38
Asylum Street	Spruce St. to Farmington Av.	D. T.	....	4658.70	....	....	....	0.16
Asylum Street	Spruce St. to Farmington Av.	D. T.	1701.60	....	....	....	....	....
Asylum Street	Main St. to Spruce St.	S. T. & D. T.	10351.20	....	....	....	....	0.48
Atheneum Street	Prospect St. to Main St.	No	558.30	....	....	....	....	0.07
Atheneum St. South	Main St. to Prospect St.	No	1387.00	....	....	....	....	0.07
Broad Street	Bridge over Park River	No	451.50	....	....	....	....	0.02
Capitol Avenue	Lafayette St. to Laurel St.	D. T.	19901.40	....	....	....	....	0.81
Capitol Avenue Ext.	Bridge over Park River	No	309.50	....	....	....	....	0.01
Central Row	Main St. to Post Office	D. T.	2000.00	....	....	....	....	0.05
Church Street	Main St. to Spruce St.	No	9448.40	....	....	....	....	0.46
Church Street	Spruce St. westerly	No	....	288.20	....	....	....	0.01
Connecticut Boul'vd	State St. to Ferry St.	D. T.	2791.10	....	....	....	....	0.08
Farmington Avenue	Asylum to Prospect Aves.	D. T.	42630.40	....	....	....	....	1.60
Ferry Street	Front St. to Foot of Hill	No	907.50	....	....	....	....	0.06
Ferry Street	Foot of Hill to Conn. Boul'vd	No	....	425.60	....	....	....	0.03
Ford Street	Pearl St. to Asylum St.	D. T.	2658.90	....	....	....	....	0.10
Front Street	Morgan St. to Sheldon St.	No	9774.70	....	....	....	....	0.56
Gold Street	Main St. to Lewis St.	No	1458.00	....	....	....	....	0.08
Grove Street	Main St. to Front St.	No	2342.10	....	....	....	....	0.19
Hamilton Street	Bridge over Park River	No	369.00	....	....	....	....	0.02
Haynes Street	Pearl St. to Asylum St.	No	....	....	718.40	....	....	0.05
High Street	Asylum St. to Main St.	No	8393.90	....	....	....	....	0.42
Hopkins Street	Broad St. to Asylum St.	No	3135.80	....	....	....	....	0.21
Hudson Street	Bridge over Park River	No	459.10	....	....	....	....	0.02
Huyshope Avenue	Charter OakAv.to Masseek St	S. T.	8405.90	....	....	....	....	0.39

PERMANENT PAVEMENTS IN HARTFORD, APRIL 1, 1920 (*Continued*).

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Jewell, Trumbull and Wells Streets	Main St. to Pearl St.	No	11800.30	....	....	....	....	0.44
Kilbourn Street	Front St. to Charles St.	No	729.70	....	....	....	....	0.05
Kilbourn Street	Charles St. to Conn. Boul'vd	No	....	849.60	....	....	....	0.05
Kinsley Street	Market St. to Main St.	No	1037.20	....	....	....	....	0.09
Laurel Street	Bridge over Park River	S. T.	....	....	....	411.00	....	0.02
Lewis Street	Pearl St. to Gold St.	No	1085.00	....	....	....	....	0.10
Main Street	Wyllys St. to Windsor Ave.	D. T.	56414.30	....	....	....	....	1.47
Main Street	State St. north	D. T.	....	....	....	....	500.00	0.06
Maple Avenue	Congress St. to Morris St.	D. T.	8725.10	....	....	....	....	0.24
Market Street	State St. to Morgan St.	S. T.	5255.30	....	....	....	....	0.25
Market Street	Morgan St. to Pleasant St.	No	2846.40	....	....	....	....	0.17
Marsh Court	Market St. to Village St.	No	552.90	....	....	....	....	0.08
Morgan Street	Market St. to Main St.	S. T.	....	1520.90	....	....	....	0.10
Morgan Street	Market St. to Front St.	S. T. & D. T.	2213.90	....	....	....	....	0.09
Morgan Street	Front St. to Conn. Boulevard	D. T.	....	2,983.10	....	....	....	0.05
Morgan Street	Conn. Boulevard to Bridge	D. T.	765.80	....	....	....	....	0.02
Mulberry Street	Main St. to Wells St.	No	1298.80	....	....	....	....	0.08
North Street	Windsor St. to Village St.	No	278.40	....	....	....	....	0.02
Park Street	Main St. to Zion St.	D. T.	19208.20	....	....	....	....	0.84
Park Street	Under Railroad Bridge	D. T.	....	560.00	....	....	....	0.03
Park Street	Bridge over Park River	D. T.	555.50	....	....	....	....	0.02
Pearl Street	Main St. to Ford St.	D. T.	8188.50	....	....	....	....	0.32
Pleasant Street	Winthrop St. to Main St.	No	1010.40	....	....	....	....	0.07
Pleasant Street	Winthrop St. to Windsor St.	No	....	1286.50	....	....	....	0.08
Pleasant Street	Windsor St. to Railroad	No	2239.70	....	....	....	....	0.14
Portland Street	Pleasant St. to Avon St.	No	2708.20	....	....	....	....	0.19
Pratt Street	Main St. to Trumbull St.	No	1438.00	....	....	....	....	0.11
Prospect Street	Atheneum St. to Central Row	No	1802.60	....	....	....	....	0.13
Prospect Street	Sheldon St. northerly	No	710.70	....	....	....	....	0.02

PERMANENT PAVEMENTS IN HARTFORD APRIL 1, 1920

Street	*Location*	*Tracks*	*Sheet Asphalt Sq. Yds.*	*Granite Block Sq. Yds.*	*Asphalt Block Sq. Yds.*	*Brick Sq. Yds.*	*Wood Block Sq. Yds.*	*Length in Miles*
Albany Avenue	Windsor Av. to Baltimore St	D. T.	44683.00					1.48
Allyn Street	Trumbull St. to Union Place	No	6041.00					0.29
Amer. & Cent. Rows	East of Post Office	D. T.		1885.00				0.03
Ann Street	Asylum St. to Main St.	No	6647.70					0.38
Asylum Street	Spruce St. to Farmington Av.	D. T.		4658.70				0.16
Asylum Street	Spruce St. to Farmington Av.	D. T.	1701.60					
Asylum Street	Main St. to Spruce St.	S. T. & D. T.	10351.20					0.48
Atheneum Street	Prospect St. to Main St.	No	558.30					0.07
Atheneum St. South	Main St. to Prospect St.	No	1387.00					0.07
Broad Street	Bridge over Park River	No	451.50					0.02
Capitol Avenue	Lafayette St. to Laurel St.	D. T.	19901.40					0.81
Capitol Avenue Ext.	Bridge over Park River	No	309.50					0.01
Central Row	Main St. to Post Office	D. T.	2000.00					0.05
Church Street	Main St. to Spruce St.	No	9448.40					0.46
Church Street	Spruce St. westerly	No		238.20				0.01
Connecticut Boul'vd	State St. to Ferry St.	D. T.	2791.10					0.08
Farmington Avenue	Asylum to Prospect Aves.	D. T.	42630.40					1.60
Ferry Street	Front St. to Foot of Hill	No	907.50					0.06
Ferry Street	Foot of Hill to Conn. Boul'vd	No		425.60				0.03
Ford Street	Pearl St. to Asylum St.	D. T.	2658.90					0.10
Front Street	Morgan St. to Sheldon St.	No	9774.70					0.56
Gold Street	Main St. to Lewis St.	No	1458.00					0.08
Grove Street	Main St. to Front St.	No	2342.10					0.19
Hamilton Street	Bridge over Park River	No	369.00					0.02
Haynes Street	Pearl St. to Asylum St.	No			718.40			0.05
High Street	Asylum St. to Main St.	No	8393.90					0.42
Hopkins Street	Broad St. to Asylum St.	No	3135.80					0.21
Hudson Street	Bridge over Park River	No	459.10					0.02
Huyshope Avenue	Charter Oak Av. to Masseek St	S. T.	8405.90					0.39

STREETS PAVED DURING YEAR ENDING MARCH 31, 1920.

Street	Section	Contractor	Pavement	Length in Feet	Total Number of Sq. Yds.	Asphalt or Granite Block Sq. Yd.	Contract Prices Concrete Cu. Yd.	Contract Prices Excavation Cu. Yd.	Cost of Pavement and Headers. (Conn. Co. costs not included)	Assessment per Front Foot	Date of Final Payment	Guarantee Expires
itol Av. Ext	Bridge over Park River	Ed. Balf Co.	Sheet Asphalt	55	309.5	$1.60	....	....	$ 495.20	Paid by City	Jan. 18, 1920	Jan. 18, 1925
ell, Trumb'l and Wells Sts.	Main St. to Pearl St.	Ed. Balf Co.	Sheet Asphalt	2,310	11,800.3	1.60	$7.87	$1.45	87,914.57	$5.435956	Jan. 18, 1920	Jan. 18, 1925
rgan Street	Conn. Boulevard to Bridge	Ed. Balf Co.	Sheet Asphalt	84	765.8	1.60	7.87	1.45	1,793.41	12.0768686	Jan. 18, 1920	Jan. 18, 1925
rgan Street	Front St. to Conn. Boulevard	O'Neil Bros.	Granite Block	285	2,640.4	3.65	10.00	1.50	10,878.18	15.4481857	Dec. 8, 1919	Dec. 8, 1920
spect Street	Grove St. to Atheneum St. (Resurfacing)	Ed. Balf Co.	Sheet Asphalt	....	1,100.8	1.95	11.00	....	2,549.66	Paid by City	Jan. 18, 1920	Jan. 18, 1925
spect Street	Park River Bridge to Sheldon Street	Ed. Balf Co.	Sheet Asphalt	69	405.4	1.60	7.87	1.45	1,212.36	6.7858388	Jan. 18, 1920	Jan. 18, 1925
thersf'ld Av.	Bond St. to City Line	Ed. Balf Co.	Sheet Asphalt	6,184	23,443.9	1.60	8.65	1.45	81,189.22	4.6427984	Nov. 21, 1919	Nov. 21, 1924
urch Street	Trumbull St. to High St. (Widening)	Ed. Balf Co.	Sheet Asphalt	....	894.2	2.15	Cost+	Cost+	3,438.99	Paid by City	....	No guarantee

Totals—New Work, 1.7 miles................	=8,987	39,365.30	$189,471.59
Totals Resurfacing, ...		1,995.00	
Grand Total,..............................		41,360.30	

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID.

Street	*Location*	*Asphalt Used*	*Year Laid*
Albany Avenue	South side, Lumber St. to East St.	Trinidad	1900
Albany Avenue	North side and tracks, Lumber St. to East St.	California (Atlas)	1909
Albany Avenue	Both sides and tracks, East St. to 50 feet East of Magnolia St.	Aztec (Mexican)	1914
Albany Avenue	Magnolia St. to Woodland St.	Aztec (Mexican)	1916
Albany Avenue	Woodland St. to Baltimore St.	Bermudez	1917
Allyn Street	Trumbull St. to Union Pl.	Bermudez	1917
Ann Street	Asylum St. to Allyn St.	Trinidad	1898
Ann Street	Allyn St. to Main St.	Bermudez	1917
Asylum Street	Main St. to Spruce St.	Bermudez	1908
Asylum Street	Strips on both sides, Spruce St. to Garden and Hopkins Sts.	Bermudez and California (Atlas)	1912
Asylum Street	Strip on north side, Garden St. westerly to header at macadam	Aztec (Mexican)	1914
Asylum Street	South side, Hopkins St. to Farmington Ave.	Bermudez and 5% California	1918
Atheneum Street	Prospect St. to Main St.	Trinidad	1896
Atheneum St. South	Main St. to Prospect St.	Aztec (Mexican)	1915
Broad Street	Bridge over Park River	Bermudez and 5% California	1914
Capitol Avenue	Both sides, Park River Bridge to Laurel St	Bermudez	1909
Capitol Avenue	North side, Hungerford St. to Lafayette St.	Bermudez	1910
Capitol Avenue	South side and south track, Broad St. to Lafayette St.	Bermudez	1911
Capitol Avenue	North track and dummy, 150 east of Oak St. to Lafayette St.	Bermudez	1911
Capitol Avenue	Both sides, Broad St. to Park River Bridge	Bermudez	1911
Capitol Avenue	Tracks, Park River Bridge to Laurel St.	California (Atlas)	1909
Capitol Avenue	North side, Hungerford St. to Broad St.	California (Atlas)	1910
Capitol Avenue	Park Terrace to Sigourney St.	Aztec (Mexican)	1916–1917
Capitol Avenue	Intersection at Lafayette St.	California (Atlas)	1911
Capitol Avenue Ext.	Bridge.	Bermudez	1919
Central Row	Main St. to Granite Block	Bermudez (small area California)	1909
Church Street	Main St. to Trumbull St.	California (Atlas)	1909
Church Street	Union Pl. to Spruce St.	Bermudez and 5% California	1918
Church Street	Intersection at Spruce St.	Trinidad and Bermudez, 50 and 50%	1913
Church Street	Trumbull St. to Union Place	Aztec (Mexican)	1916
Church Street	Main St. to Trumbull St.	Bermudez	1918
Church Street	High St. to Union Place	Bermudez	1918
Connecticut Boule'd	State St. to Ferry St.	Aztec (Mexican)	1916
Farmington Avenue	South track and dummy, Sigourney St. to Woodland St.	Bermudez	1909
Farmington Avenue	South side, south track and dummy, from 110 feet east of Tremont St. to 120 feet west of Beacon St.	Bermudez and Trinidad	1911
Farmington Avenue	North side and north track, from 110 feet east of Tremont St. to 140 feet west of Beacon St.	California and Bermudez	1911

Farmington Avenue	Woodland St. to 100 feet east of Tremont St.	Bermudez	
Farmington Avenue	From 120 feet west of North Beacon St. and from 140 feet west of North Beacon St. to City Line, both sides	California (Atlas)	1911
Farmington Avenue	North track, Sigourney St. to Woodland St.	California (Atlas)	1909
Farmington Avenue	North and south sides, from Asylum to Woodland Sts.	Bermudez and 5% California (Atlas)	1913
Farmington Avenue	North and south tracks and dummy, from Sigourney St. to Asylum St.	Bermudez and 5% California (Atlas)	1913
Ferry Street	Front St. to foot of Hill.	Bermudez	1917
Ford Street	Asylum St. to Bridge over Park River	Bermudez	1908
Front Street	Potter St. to Sheldon St.	Bermudez and California	1912
Front Street	Potter St. to State St.	California (Acme)	1912
Front Street	Morgan St. to State St.	Bermudez and 5% California (Atlas)	1913
Front Street	Intersection at Talcott St.	Trinidad and Bermudez, 50 and 50%	1913
Gold Street	Main St. to Lewis St.	Trinidad	1898
Grove Street	Front St. to Prospect St.	California (Acme)	1912
Grove Street	Prospect St. to Main St.	Trinidad	1898
Hamilton Street	Bridge over Park River	Bermudez and 5% California	1914
High Street	Church St. to Main St.	Bermudez	1911
High Street	Church St. to Main St.	Aztec (Mexican)	1918
High Street	Asylum St. to south side of Allyn St., north side of Allyn St. to south side of Church Street	Bermudez and 5% California	1914
Hopkins Street	Broad St. to Asylum St.	Trinidad	1899
Hudson Street	Bridge over Park River	Bermudez	1918
Huyshope Avenue	Charter Oak Ave. to Masseek St.	Bermudez and Aztec	1918
Jewell, Trumbull and Wells Streets	Main St. to Pearl St.	Bermudez	1919
Kilbourn Street	Front St. to Charles St.	Bermudez	1917
Kinsley Street	Market St. to Main St.	Trinidad	1898
Lewis Street	Pearl St. to Gold St.	Trinidad	1900
Main Street	East side, Wyllys St. to 100 feet south of Charter Oak Ave.	Aztec (Mexican)	1914
Main Street	East side, from 140 feet north of, to 100 feet south of Charter Oak Ave.	Bermudez	1910
Main Street	East side from Sheldon St. to 140 feet north of Charter Oak Ave.	California (Obispo)	1910
Main Street	West of tracks along east side of South Green	Aztec (Mexican)	1916
Main Street	Across south end of South Green	Aztec (Mexican)	1916
Main Street	Sheldon St. Intersection	Bermudez	1910
Main Street	East side, from 80 feet north of Arch St. to Sheldon St.	California (Obispo)	1910
Main Street	Engine House No. 1 to Buckingham St., tracks	Aztec (Mexican)	1916
Main Street	East side, Atheneum St. to 80 feet north of Arch St.	Bermudez	1910
Main Street	East side, Atheneum St. to 70 feet north of Grove St.	Bermudez and California (Atlas)	1912
Main Street	East side, Central Row to 70 feet north of Grove St.	Bermudez	1912
Main Street	Buckingham St. to Atheneum St., south, tracks resurfaced	Aztec (Mexican)	1916
Main Street	East side, Central Row to State St.	Trinidad	1896
Main Street	East side, from State St. to 100 feet north of Temple St.	Bermudez	1912
Main Street	East side, from 100 feet north of Temple St. to 50 feet north of Talcott St.	Bermudez and California (Atlas)	1912
Main Street	East side, Windsor St. to 50 feet north of Talcott St.	Bermudez	1912
Main Street	North side, Windsor St. to 120 feet east of Pleasant St.	California (Atlas)	1911

LIST OF ASPHALTED STREETS—GIVING KIND OF ASPHALT USED AND YEAR LAID (*Continued*).

Street	*Location*	*Asphalt Used*	*Year Laid*
Main Street	North side, Windsor Ave. to 120 feet east of Pleasant St.	Bermudez	1911
Main Street	West side, from Jefferson St. 80 feet north, and tracks 190 feet north	Bermudez	1912
Main Street	West side, Park St. to 80 feet north of Jefferson St.	Bermudez and Trinidad	1911
Main Street	West side, Park St. to Engine House No. 1	California (Atlas)	1912
Main Street	West side, Wells St. to Engine House No. 1	Bermudez	1910
Main Street	West side, Wells St. 180 feet south of Mulberry St.	Bermudez and California (Atlas)	1912
Main Street	West side, from 270 feet south of Grove St. to 180 feet south of Mulberry	California (Acme)	1912
Main Street	West side, Grove St. 270 feet south	Bermudez	1912
Main Street	West side, Grove St. to Asylum St.	Bermudez and California (Acme)	1912
Main Street	West side, Asylum St. to 110 feet north of Church St.	Bermudez and California	1912
Main Street	South-west side, from 540 feet east of Ann St. to 110 feet north of Church	California (Atlas)	1912
Main Street	South side, from Ann St. 540 feet easterly	Bermudez and California (Atlas)	1912
Main Street	Triangle between tracks at Tunnel, including tracks and south side from east side of Ann St. west to Lumber St.	Aztec (Mexican)	1914
Main Street	Triangle between tracks at South Green	Bermudez and California (Atlas)	1912
Main Street	Tracks, Wyllys St. to north end of South Green	Bermudez	1908
Main Street	Tracks, Central Row to State St. and Pearl St. Intersection	Bermudez	1909
Main Street	Track work at Main St., State St. and Asylum St. Intersection	California (Atlas)	1909
Main Street	Tracks at Park St. to 190 feet north of Jefferson St.	California (Atlas)	1912
Main Street	Atheneum St. South to Pearl St., tracks resurfaced.	Bermudez	1917
Maple Avenue	Congress St. to Morris St.	Aztec (Mexican)	1916
Market Street	West side, Morgan St. to State St.	California (Atlas)	1909
Market Street	Track, State St. to Morgan St.	Bermudez and 5% California	1914
Market Street	Morgan St. to Pleasant St.	Aztec (Mexican)	1914
Market Street	East side, State St. to Temple St.	Trinidad	1898
Market Street	East side, Temple St. to Morgan St.	Bermudez and 5% California	1914
Marsh Court	Village St. to Market St.	Bermudez and 5% California	1913
Morgan Street	Both sides and tracks, Market St. to Front St.	Bermudez and 5% California	1913
Morgan Street	Connecticut Boulevard to Bridge	Aztec (Mexican)	1919
Mulberry Street	Main St. to Wells St.	Trinidad	1898
North Street	Windsor St. to Village St.	Bermudez	1917
Park Street	Main St. to Zion St.	Aztec (Mexican)	1916-1917
Park Street	Bridge over Park River	Bermudez	1912
Pearl Street	Tracks from Main St. to 150 feet west	Bermudez	1909
Pearl Street	Tracks, from 150 feet west of Main St. to Ford St.	Bermudez	1910
Pearl Street	Both sides, Main St. to Ford St.	Trinidad	1903
Pleasant Street	Winthrop St. to Main St.	Trinidad	1903
Pleasant Street	Windsor St. to Market St.	Trinidad	1913

Pleasant Street	Market St. to Railroad	Trinidad and Bermudez, 50 and 50%	1913
Portland Street	Pleasant St. to Avon St.	Aztec (Mexican)	1918
Pratt Street	Main St. to Trumbull St.	Bermudez	1917
Prospect Street	Central Row to Grove St.	California (Acme)	1912
Prospect Street	Bridge over Park River	Bermudez	1918
Prospect Street	Grove St. to Atheneum St.	Bermudez	1919
Prospect Street	Bridge to Sheldon St.	Bermudez	1919
Sequassen Street	Foot of Hill to Huyshope Ave.	Bermudez	1917
Sheldon Street	Union St. to Taylor St.	California (Acme)	1912
Sheldon Street	Main St. to 77 feet west of Union St.	California (Atlas)	1911
Sheldon Street	Main St. from 77 west of Union St. to Union St.	Texaco	1911
Sheldon Street	Taylor St. to Van Dyke Ave.	Bermudez	1917
Spruce Street	Asylum St. to Church St.	Trinidad	1900
State Street	Gutters, both sides, from Market St. to Front St.	Bermudez	1909
State Street	South side and track, from end of granite block west of Front St. to Connecticut Boulevard	Bermudez	1912
State Street	North side, track and dummy, from 220 feet east of granite block to Connecticut Boulevard	Bermudez and California (Acme)	1912
State Street	North side, track and dummy, from granite block 220 feet easterly	California (Acme)	1912
State Street	North side, granite block to Main St.	California (Atlas)	1909
Talcott Street	Gutters on both sides, Market St. to Main St.	Trinidad	1898
Talcott Street	Front St. to Market St.	Aztec (Mexican)	1914
Temple Street	Market St. to Main St.	Trinidad	1898
Temple Street	Front St. to Market St.	Bermudez and 5% California	1914
Trinity Street	East side and tracks, Capitol Ave. to Bridge	Bermudez	1908
Trinity Street	West side, Capitol Ave. to Ford St.	Aztec (Mexican)	1914
Trumbull Street	Asylum St. to Pearl St.	Texaco	1915
Trumbull Street	Asylum St. to Pratt St. and Church St. to Main St.	Trinidad	1898
Trumbull Street	Church St. to Pratt St.	Bermudez and 5% California	1914
Van Dyke Avenue	Sheldon St. to Masseek St.	Bermudez	1917
Village Street	Windsor St. north	Trinidad	1898
Village Street	City Park to Pleasant St.	Trinidad	1899
Village Street	Pleasant St. to North St.	Aztec (Mexican)	1915
Village Street	North St. to Avon St.	Texaco	1915
Wethersfield Ave.	Wyllys St. to Bond St.	Aztec (Mexican)	1915
Wethersfield Ave.	Bond St. to City Line	Aztec (Mexican)	1919
Windsor Avenue	Tracks, Albany Ave. to Canton St.	Bermudez	1907
Windsor Avenue	Tracks, Canton St. to Capen St.	California (Atlas)	1910
Windsor Avenue	Capen St. to Westland St.	Bermudez	1917
Windsor Avenue	East side, Canton St. to Capen St., also west side, Mather St. to Capen St.	Trinidad	1899
Windsor Avenue	West side, Main St. to Mather St.	Aztec (Mexican)	1914
Windsor Avenue	East side, Main St. to Canton St.	Bermudez	1917
Windsor Avenue	Westland St. to City Line	Aztec and Bermudez	1918
Windsor Street	City Park to Pleasant St.	Trinidad	1898
Windsor Street	Pleasant St. to Avon St.	Aztec (Mexican)	1914

TABLE SHOWING COST PER YARD FOR REPAIRS TO SHEET ASPHALT PAVEMENT ON TYPICAL STREETS OR SECTIONS OF STREETS FOR EACH YEAR AFTER THE EXPIRATION OF GUARANTEE TO APRIL 1, 1920.

Street	*Section*	*Yards City Only*	*Com- pleted*	*Years Guaranteed*	*Sixth Year*	*Seventh Year*	*Eighth Year*	*Ninth Year*	*Tenth Year*	*Eleventh Year*	*Twelfth Year*	*Thirteenth Year*	*Fourteenth Year*	*Fifteenth Year*	*Sixteenth Year*	*Seventeenth Year*	*Eighteenth Year*	*Nineteenth Year*	*Twentieth Year*	*Twenty-first Year*
					$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Ann Street	Asylum St. to Allyn St.	1170	1898	5	....	....	....	....	.006	....	.005	....	.01	.01	.01	....	....	.002	....	.02
Asylum Street	Main St. to Spruce St.	7351	1908	10	....	....	....	....	....	.036	....	....	....	....	....	....	....	....	....	....
Capitol Avenue	Sigourney St. to Laurel St.	2059	1909	5	....	....	.071	.023	.055	....	....	....	....	....	....	....	....	....	....	....
Farmington Av.	Asylum St. to Woodland St.	11567	1913	5	.033	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Farmington Av.	Woodland St. to Tremont St.	8741	1910	5	....	.002	.021	.014	....	....	....	....	....	....	....	....	....	....	....	....
Farmington Av.	Tremont St. to Prospect Ave	4153	1911	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ford Street	Asylum St. to Pearl St.	1651	1908	5	....	....	....	....	....	.015	....	....	....	....	....	....	....	....	....	....
Front Street	Sheldon St. to State St.	5192	1912	5	.009	.001	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Front Street	State St. to Morgan St.	4583	1913	5	.004	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Street	Main St. to Lewis St.	1458	1898	5	....	....	....	....	....	....	....	.02	.02	....	.01	.006	.005	.027	.007	.141
Grove Street	Main St. to Prospect St.	913	1898	5	....	....	....	....	.04	.06	.06	.03	.12	.14	.07	.049	.078	.138	.014	.128
Grove Street	Prospect St. to Front St.	1429	1912	5	.004	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hopkins Street	Broad St. to Asylum St.	3136	1899	5	....	.07	.09	.24	.12	.22	.17	.13	.07	.11	.067	.068	.058	.071	.372	....
Kinsley Street	Main St. to Market St.	1037	1898	5	....	....	....	....	....	.09	....	.01	....	....	.01	.005	.003	.058	.009	.098
Lewis Street	Pearl St. to Gold St.	1085	1900	5	....	....	....	....	....	.01	.02	....	.01	.009	....	.003	....	.04	....	....
Marsh Court	Market St. to Village St.	553	1913	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Mulberry Street	Main St. to Wells St.	1299	1898	5	....	.02	....	.02	.04	.01	....	02	.03	.05	.07	.004	.015	.038	.097	.321
Pearl Street	Main St. to Ford St.	4581	1903	10	....	....	....	....	....	.03	.011	.092	.015	.012	.039	....	....	....	....	....
Pleasant Street	Main St. to Winthrop St.	1010	1898	5	.01	....	....	....	....	....	.05	.01	....	....	.01	.016	.013	.024	....	.10
Pleasant Street	Windsor St. to Railroad	2240	1913	5	.027	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sheldon Street	Main St. to Union St.	4287	1911	5	.005	.013	.003	....	....	....	....	....	....	....	....	....	.003	....	....	....
Sheldon Street	Union St. to Commerce St.	1354	1912	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Spruce Street	Asylum St. to Church St.	2286	1900	5	....	....	....	.002	.002	.01	.02	.05	.05	.051	.013	.03	.063	.201	....	....
State Street	Front St. to Conn. Boulev'd	1700	1912	5	.002	.007	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Temple Street	Main St. to Market St.	1052	1898	5	.003	.006	....	....	....	....	.01	....	....	.03	.001	.008	.01	.042	....	.052
Village Street	City Park to Pleasant St.	1264	1899	5	....	....	....	....	....	....	.005	.03	.02	.01	.016	.089	.028	....	.006	....
Windsor Street	Village St. to Pleasant St.	2318	1898	5	.005	....	....	....	.015	....	....	.007	.145	.047	.081	.081	.041	.153	.006	.086

Box
TE 25

Fourteenth Annual Report

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1921

Fourteenth Annual Report

OF THE

Department of Engineering

TO THE

COURT OF COMMON COUNCIL

OF THE

CITY OF HARTFORD, CONN.

FOR THE YEAR ENDING MARCH 31, 1921

CHARTER OAK PRESS
HARTFORD, CONN.

HARVARD UNIVERSITY
The Library of the Schools
of Landscape Architecture and City Planning

ORGANIZATION.

ROSCOE N. CLARK, City Engineer.
ROBERT J. ROSS, Assistant City Engineer.
WILLARD S. BREWER, Division Engineer.
HERBERT G. CLARK, Division Engineer.
H. IRVING SKILTON, Division Engineer.
F. PERRY CLOSE, Division Engineer.
F. G. FLOOD, Chemist.
ALDEN WELLS, Senior Assistant Engineer.

GEORGE S. FRANCIS, Senior Assistant Engineer.
CHARLES W. COOKE, Senior Assistant Engineer.
ROBERT E. CROSS, Senior Assistant Engineer.
PETER K. RASK, Junior Assistant Engineer.
JOHN P. MURPHY, Junior Assistant Engineer.
GEORGE ANGELO, Junior Assistant Engineer.
AARON FIEN, Junior Assistant Engineer.
EDWARD L. DONAGHUE, Inspector.
RAYMOND W. SMITH, Inspector.
JUDSON B. ROOT, Inspector.
WILLIAM H. BRAINARD, Inspector.
PAUL P. KIMBALL, Inspector.
LUCENE H. STETSON, Clerk.

WINFRED W. DE MAY,
DANIEL R. MUIRHEAD,
THOMAS ROWLAND,
WILLIAM H. DAVIS,
HARRY E. STEDMAN.

REPORT

Hartford, Conn., May 31, 1921

To his Honor the Mayor, and to the Honorable Court of Common Council of the City of Hartford, Connecticut.

Gentlemen:

I have the honor to submit the following report of the work of the Department of Engineering for the year ending March 31, 1921.

SEWER DIVISION

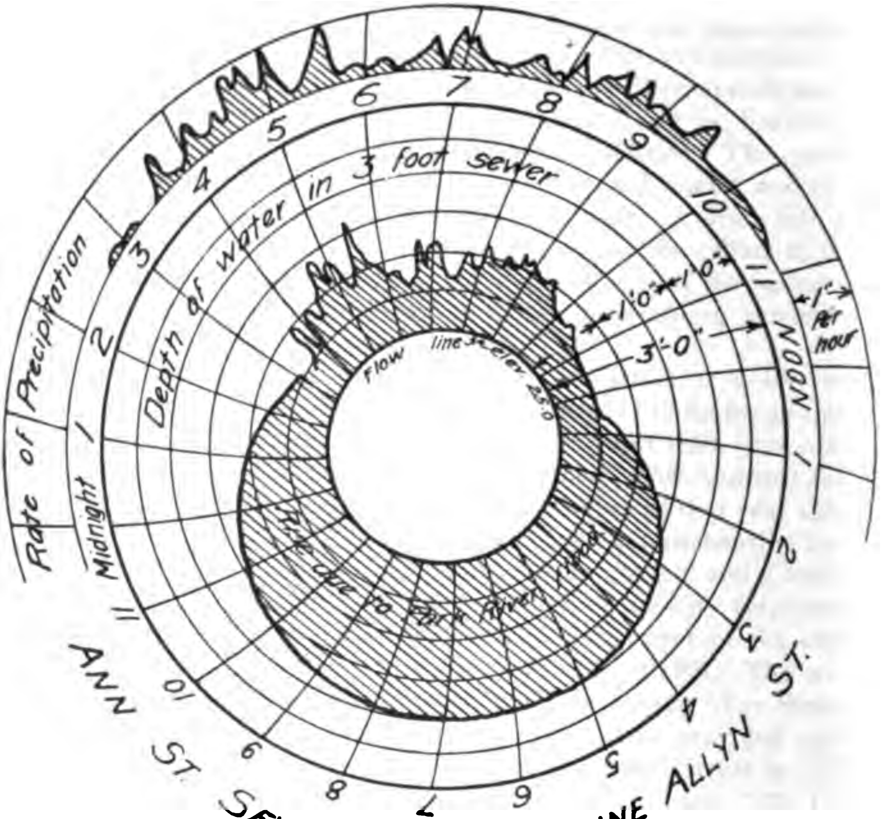
Tables appended to this report give detail figures for all sewers constructed during the year and I will call attention here to only some of the more important work.

The contract awarded to A. W. Byrne & Son in July, 1919, for the construction of 1230 feet of the Gully Brook Conduit has been completed, 716 feet of the horseshoe section, 8 ft. by 8 ft., having been built the past year. This brings the work up to a point 150 feet north of Greenfield Street and 1900 feet short of the end, near Vineland Terrace, as laid out by the Court of Common Council. Since 1916 there have been built, under two contracts, 3800 feet of conduit at a cost of $119,432.96, leaving a balance available for construction of $10,892.81. An additional appropriation of $75,000 is needed in order to complete the work to Westland Street.

In the last annual report of this Department it was noted that the residents of Morningside and Euclid Streets, west of Blue Hills Avenue, near the City Line, had requested sewer facilities, but that it would be impossible to serve them until the intercepting sewer in Granby Street, which ends at Uphill Street, had been extended, a project which involved an appropriation by the City. However, in order to relieve these people from the expense of pumping ground water, considerable of which accumulates in the cellars in wet weather, sewers were laid out in the above named two streets and in Burnham Street and a portion of Canaan Street in addition. The upper part of these sewers were built last fall and winter and the remainder will be completed early this year. A drain into a nearby brook provides an outlet and allows the cellars to be connected to these sewers. No connection with the sanitary plumbing can be permitted until the intercepting sewer is extended as before explained.

A new sewer was built in Chapel Street at a cost of $8,542.98. It is interesting to note that the old drains in this street and in the rear of the houses, built about 1859, were condemned by the Board of Health in October, 1906, and that the Board of Street Commissioners in December of that year submitted to the Court of Common Council a comprehensive layout of sewers in Asylum, Ann, Allyn, Church and Chapel Streets based upon the recommendation of the City Engineer. There were so many remonstrances on account of the cost that only the lower portion was built, this in 1907. The second step was made in 1916 when Ann Street, from Allyn Street to the high point north of Chapel Street, was provided with a new sewer. An effort to build one in Chapel Street in 1917 at an estimated cost of $3,200 failed, but in June, 1920, the project passed the Court of Common Council with an estimated cost of $8,544.78. This is a good instance of the length of time required to put through a needed public work and of the extra cost often occasioned by delay.

A length of about 6 feet of the old storm water culvert on the property of the House of the Good Shepherd collapsed at a point just east of Sisson Avenue. This culvert crossed Sisson Avenue and extended easterly about 175 feet to the open brook. It was built of brick, 4½ feet in diameter, and was quite old and in very poor condition. On this account it was decided to rebuild the entire length, 226 feet, of reinforced



ANN ST. SEWER AT SOUTH LINE ALLYN ST.
DECEMBER 5, 1920

concrete and it is now completed at a cost of $13,100. The size was increased to 7'4"x8'0", horseshoe section in order to care for the large volume of storm water which now comes from the extensive watershed to the northwest.

Considerable time has been spent by this division during the past year in investigating complaints of cellar flooding and in devising ways and means of relief where it is found that the trouble is due to inadequate sewers. The large number of heavy rainstorms during the summer and fall included some excessive storms which overtaxed sewers capable of taking the run-off from ordinarily heavy storms. The Asylum Street sewer gives an instance of the latter case during the storm of August 16, 1920. There was a rainfall of 1.28 in. in 55 minutes, with the heaviest part of the rain at the end of the storm giving rates of 3.3 in. per hour for 10 minutes, and 3.9 in. per hour for 5 minutes. Some complaints were received after this storm. In September a recording gage was placed in the Ann Street sewer at Allyn Street and a reproduction of the chart recorded by the storm of December 5, 1920, gives a graphical illustration of the effect of the flow in the Park River on this sewer. On this chart, for purpose of comparison, have been plotted the rates of rainfall at 5-minute intervals for the duration of the storm. The highest rate is seen to be 1 in. per hour. It will be noted that the water in the 3-foot sewer rose to a depth of 1.6 feet and had gone down about to normal at the end of the storm at which time the Park River had risen sufficiently to back into the sewer. The water continued to rise until it was 2 feet deep and then subsided; the whole process taking some 14 hours. The storm of September 30, 1920, in which 4.6 in. of rain fell in 23 hours, produced the same effect on a much larger scale.

An investigation of the condition of the Hopkins Street sewer showed that it was badly overloaded during heavy storms. This sewer, about 15"x18" in section, takes the drainage of all the High School buildings, both the old on Hopkins Street and the new on Broad Street. It has been decided to replace it with 20" tile from Asylum Street southerly 150 feet at which point the main drain from the Broad Street building enters.

Some progress has been made in alleviating the bad flooding on Prospect Avenue in the vicinity of Capitol Avenue and the Boulevard. The building of houses on the West Hartford side of the avenue has created a pocket here with no outlet except the 20 in. tile sewer draining easterly in Capitol Avenue. By far the larger part of the storm water came down the Boulevard from the west, the limit of the watershed being west of Whiting Lane. After negotiating with the West Hartford authorities for about a year they built during the spring of 1920 a storm sewer in Fairview Place which intercepts all storm water coming from the west. This left one block draining to Prospect Avenue and later observations showed that the 20 in. sewer before mentioned was still overloaded. Therefore, the layout of a storm sewer in Prospect Avenue from the Boulevard southerly to Beacon Street, and thence westerly to the brook flowing southerly, was recommended to the Board of Street Commissioners. It is expected that this sewer will be built this year.

Another section from which a number of complaints were received and needing relief is that bounded by Asylum Avenue on the south, Sargeant Street on the north, Woodland Street on the west, and Garden and Huntington Streets on the east. These sewers, built from 1865 to 1895, were, of necessity, built on very flat grades. Office computations showed that the main trunks in Atwood Street and Sargeant Street could not possibly accept all the load coming to them in even fairly heavy storms, and from actual observations on the ground it was found that a good deal of the water had to await its turn, and a post card canvass of all the property owners in this section substantiated our belief that some of the water backed into the cellars during the wait. In this canvass 349 enquiries were mailed. The results have been plotted on a plan and as it has proved quite interesting a reproduction of it is given in this report. Although practically no trouble was reported on Atwood Street (this on account of sewer being quite deep) the effect of the overload on this sewer is seen in the trouble on Sargeant Street. Willard Street and Sigourney Street are flooded by reason of the very shallow sewers in these streets.

Preliminary designs and estimates for sewers to relieve these conditions have been made and steps toward their construction should be taken in the near future.

For the meadow section south of Park River to Wawarme Avenue estimates were made for the building of new sewers and a pumping station, but after consideration it was deemed advisable to defer any work here on account of present high costs.

In connection with the work of sewer design a chart was prepared showing the relation between time and intensity of rainfall, and as it is a matter of some interest it is reproduced herewith. The data is taken from the records of the U. S. Weather Bureau Station in this city. It illustrates very well the fact that the very heavy rates of rainfall are of quite short duration. One exception is the storm of August 21, 1917, which was a veritable cloud burst at the center of the City where the rain gage was located. That the path of such a storm is very narrow is shown by the fact that this storm caused very little trouble in the western part of the City while the storm of July 24, 1917, with rates of only 3.5 in. per hour for 5 minutes, and 2.72 in. per hour for 20 minutes at the Weather Bureau gage was in the western part the most severe storm in years and caused very bad flooding. For the purpose of comparison three empirical formulae have been plotted on the chart. Through the co-operation of Mr. Mason, Superintendent of Public Buildings, an automatic rain gage has been established on the roof of the Municipal Building. The gage, which was in service on the roof of the old City Hall up to 1915, is mounted on a light platform at the peak of the roof at the easterly end of the building.

During the winter work was continued on the plotting of old sewers of which there were no maps.

Advantage was taken of the fact that our 1913 edition of the sewer contract and specifications was about exhausted to thoroughly revise the form and bring it up to date as regards new methods of construction, notably tile block sewers and reinforced concrete pipe. Five hundred contracts and one thousand proposal forms were printed.

Detail plans of the standard "Hartford" catch basin frame and of the new ornamental lighting standard were made for the Street Department.

Through the combined efforts of this department and the Street Department a timber frame was made in which the crushing test could be applied to sewer pipe. The construction was such as to allow the pipe to be placed horizontally on two bearing edges consisting of rounded pieces of oak placed parallel to the length of the pipe. These oak edges were placed one inch apart on a timber which could move between guides in a vertical direction. A jack placed beneath this timber would raise it and the pipe which rested on it until the pipe met the upper bearing surface after which the load was slowly applied by the jack until the pipe failed. Several tests were made using a "Loadometer" jack, which was kindly loaned by the State Highway Department. These jacks register the load as it is applied. A photograph of this apparatus is given in this report.

BRIDGE DIVISION

No bridges were built during the year. The west abutment of the bridge over the Park River at Flatbush Avenue showed signs of settlement and the adjacent wing wall on the northerly side had pushed outwards. To prevent further movement a line of timber piles was driven outside the wing wall and tied back into the roadway with steel tie rods. To prevent scouring by the river several tons of stone of a size ranging from 6" to 12" were placed in front of the abutment.

PAVING DIVISION

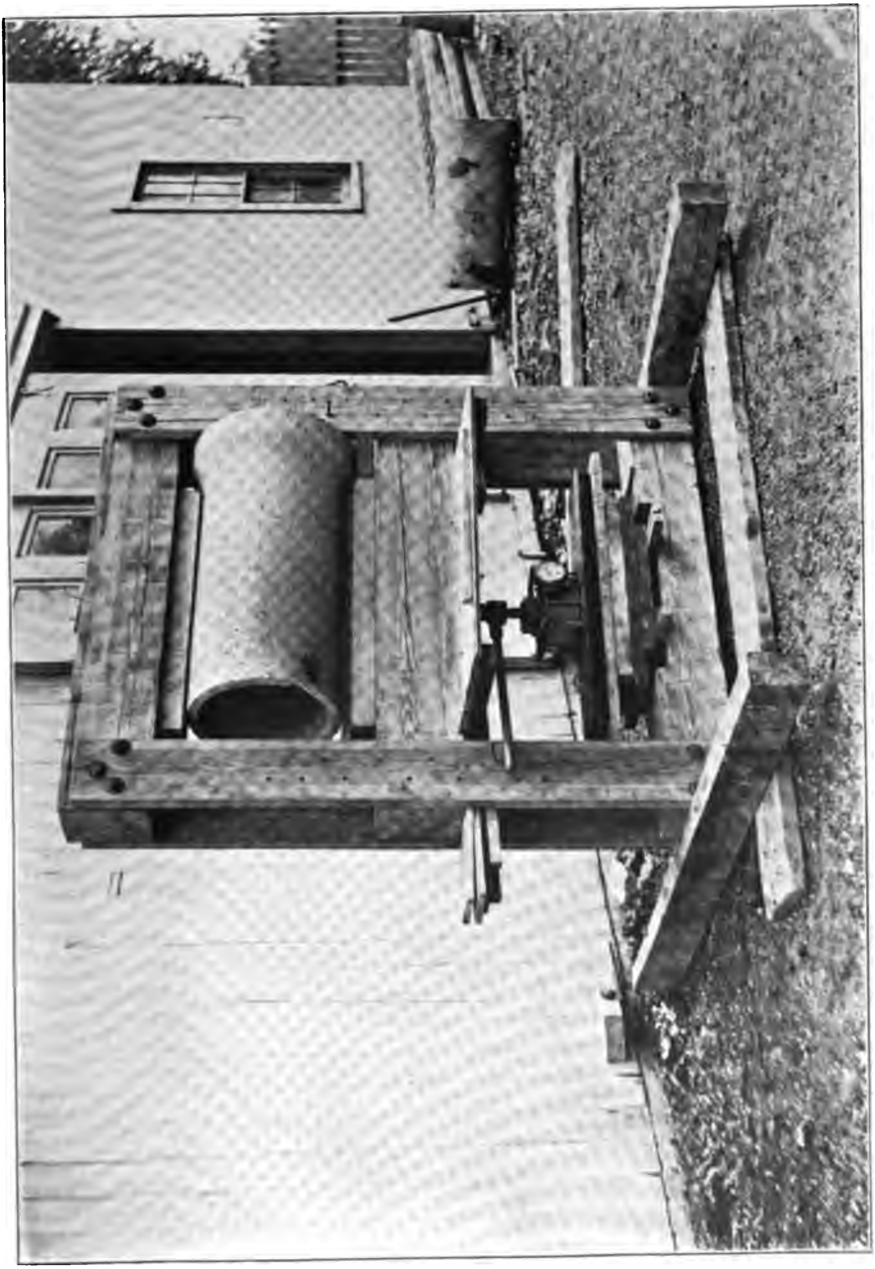
PERMANENT PAVEMENTS

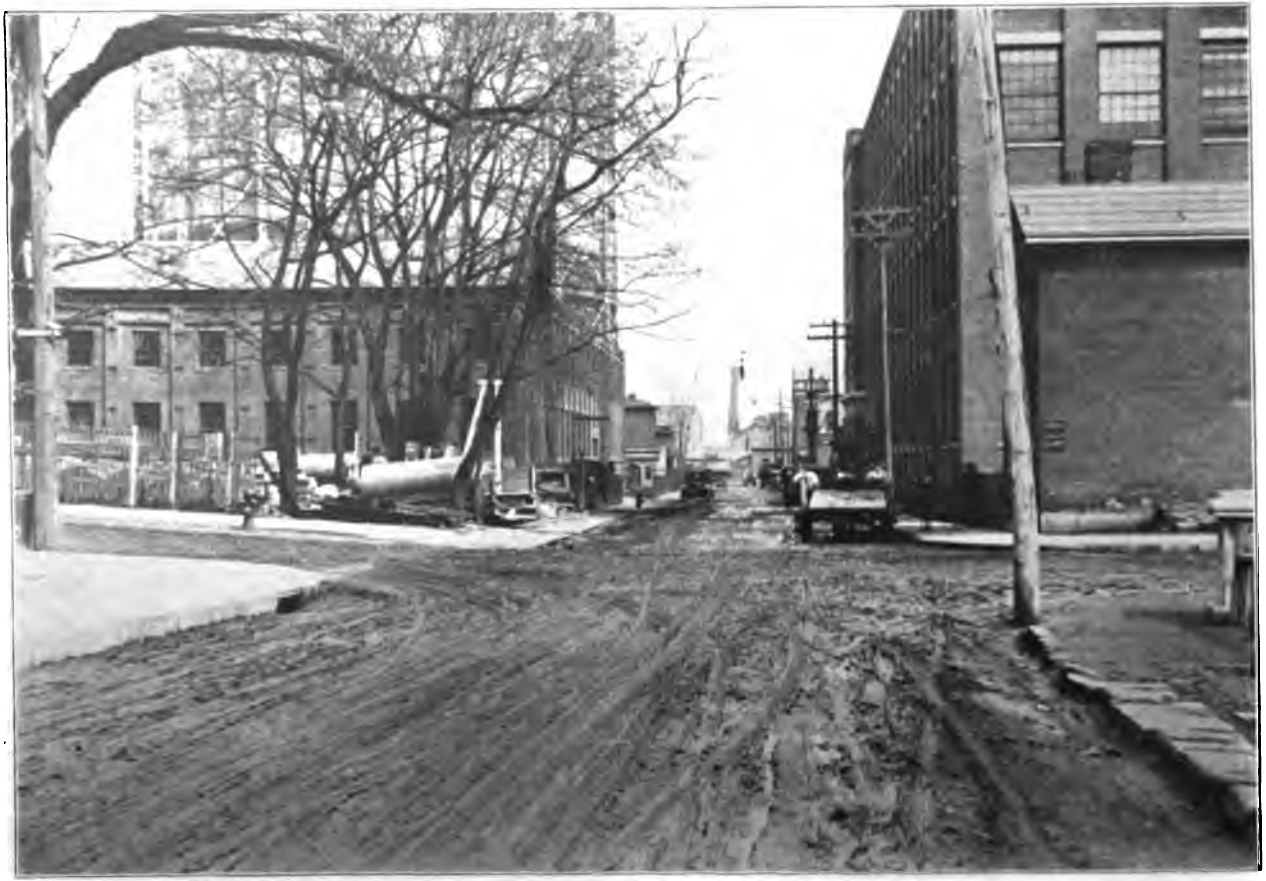
Due principally to the extremely high cost of labor and materials, the paving program for the year 1920 was restricted to the lineal length of about one mile.

The streets paved with sheet asphalt were as follows:

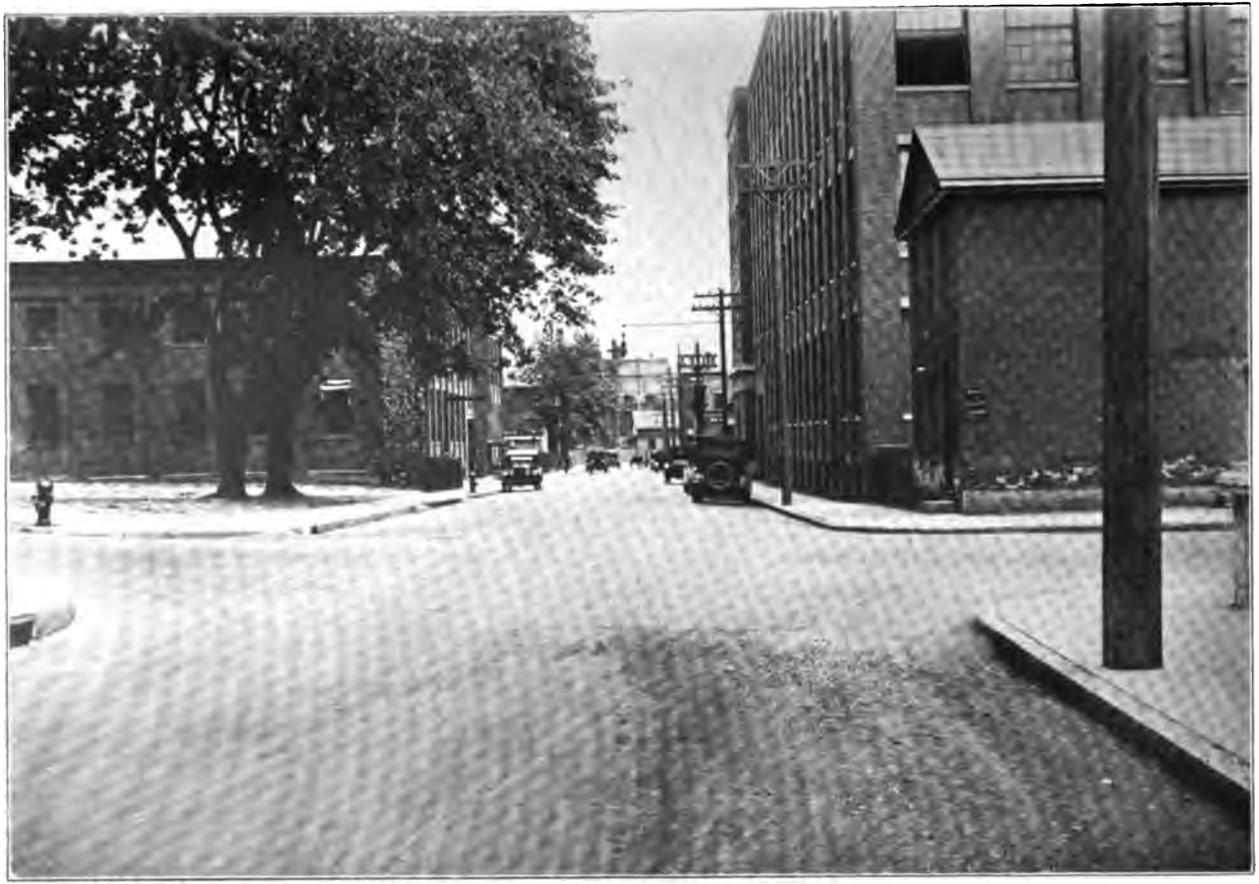
Arch Street—Prospect Street to Front Street.

Charles Street.





ARCH STREET BEFORE WIDENING



ARCH STREET WIDENED AND PAVED

Connecticut Boulevard—Ferry Street to Morgan Street.
North Street—Village Street to the Railroad.
Prospect Street—Atheneum Street to the Bridge over Park River.
Winthrop Street.

Arch Street was made a 45-foot street by setting the street line back 8 feet on the north side. The roadway was then widened before paving by the establishment of a 7-foot curb line on the north side, giving a new roadway 32 feet in width. Under orders from the Board of Street Commissioners the property owners installed new granite curbing and concrete sidewalks on each side. The improvements on this street make a very striking change from the former conditions caused by deep mud or dust, with sidewalks either in wretchedly poor condition or missing altogether.

Charles Street roadway was also widened from Talcott Street to Morgan Street. The old roadway width was 18 feet, the new 23 feet.

In connection with the paving of North Street, the retaining wall maintained by the N. Y., N. H. & H. R. R. Co. across the easterly end of the street was taken down and rebuilt to the correct line.

In the case of Winthrop Street special precautions were taken to guard against possible settlement of the pavement due to movement of the subsoil, for it was found that the subgrade could not hold without movement loads of sand and stone hauled over it in the course of construction of the pavement. The old roadway surface had been very badly cut up just prior to the paving work by the installation of new Connecticut Co. duct line, Hartford Electric Co. duct line, Southern New England Telephone Co. duct line and a new gas pipe line, while the water pipe had been renewed and a new sewer built in the preceding three years. Due to these disturbances, coupled with heavy rains, and to the fact that the subsoil is clay, considerable trouble was experienced in keeping the trenches in shape for travel in the interval between the completion of the underground work and the laying of the pavement. It was therefore found advisable to reinforce the concrete base of the sheet asphalt pavement. Wire mesh reinforcing of extra heavy section was imbedded in the concrete base from one to two inches above the subgrade. The pavement is now in perfect condition.

The concrete pavement base as laid during 1920 was composed of cement, sand, and stone mixed in the proportions 1—2—4 instead of 1—3—6, which up to this time had been the custom followed in Hartford. This change was deemed advisable because of the great increase in the weight of vehicular traffic. The wisdom of this change has been fully demonstrated, as shown by the practically perfect condition of the pavement laid in 1920, the surface being smooth, even and true to grade. The surface of some of our pavements, notably Windsor Avenue, where the subgrade was composed in whole or in part of a clay soil, and the concrete base was composed of the 1—3—6 mix, is more or less uneven and wavy. I feel that the use of a stronger pavement base as outlined above will give pavements which will stand up much better under the ever increasing modern traffic.

Talcott Street from Front Street to Connecticut Boulevard was paved with granite blocks laid in cement grout.

In connection with the paving work the City reset the curbs and walks on Charles Street, North Street and Talcott Street, and the curbs on Connecticut Boulevard, Winthrop Street and a small section on the east side of Prospect Street. This resetting of curbs and walks, and installing of new curb corners and headers was done by the City under contract.

19,733.1 square yards of permanent pavement were laid during 1920 at a total cost to the City and property owners of $84,479.60. The City now has 26.62 miles of permanent pavement, covering a total area of 583,511.5 square yards. This yardage and length includes concrete pavements on various streets, also the bituminous surface over macadam foundation on Albany Avenue between Baltimore Street and City Line, items which have not previously been included in the annual reports of this department.

Tables giving various paving statistics are appended to this report.

RESURFACING

No resurfacing work was undertaken during 1920.

PAVING REPAIRS

In making repairs the past season 5963.9 square yards of sheet asphalt were laid. In addition to this, repairs were made in a number of places in granite block pavement, and a small amount of concrete foundation was renewed. The cost for repairs on streets paved with permanent pavement was $16,481.18. The average cost of repairs to streets paved with sheet asphalt, this cost being proportioned over the total number of square yards of asphalt pavement in the city on April 1, 1920 (Connecticut Co. railway area not included) was 4.7 cents per square yard.

PAVING PROPOSED FOR 1921

During the season of 1921 permanent pavement will be laid on the following streets:

Morgan Street—Main Street to Market Street—Granite Block.
Morgan Street—Market Street to Front Street—Sheet Asphalt.
Chapel Street—Sheet Asphalt.
Main Street—A strip 12 feet in width will be paved with sheet asphalt between the tracks and the new curb line along the westerly side of South Green.

A portion of Washington Street from Capitol Avenue southerly will be paved with a bituminous surface laid over the old macadam as a base.

LONG RADIUS CURBS

In connection with the curb work on Arch, Charles, North and Winthrop Streets, long radius curbing was installed on the following corners:

Arch Street—Northeast corner Prospect Street and both corners at Front Street.
Charles Street—Four corners at Talcott Street.

North Street—Both corners at North Front Street.

Winthrop Street—Both corners at Ely Street.

The northwest corner of Elm and Hudson Streets was also set back.

TRACK WORK

In connection with the paving of Connecticut Boulevard the tracks were relined and set to a new grade furnished by this department.

New rails were laid in Garden Street from Asylum Street to Ashley Street. Since the old ties were not removed, the new rails being spiked in the same position as the old, a new grade could not be used. Uneveness of surface was avoided by placing small wooden blocks in a bearing position over old ties which were lower than the true grade of the rail base.

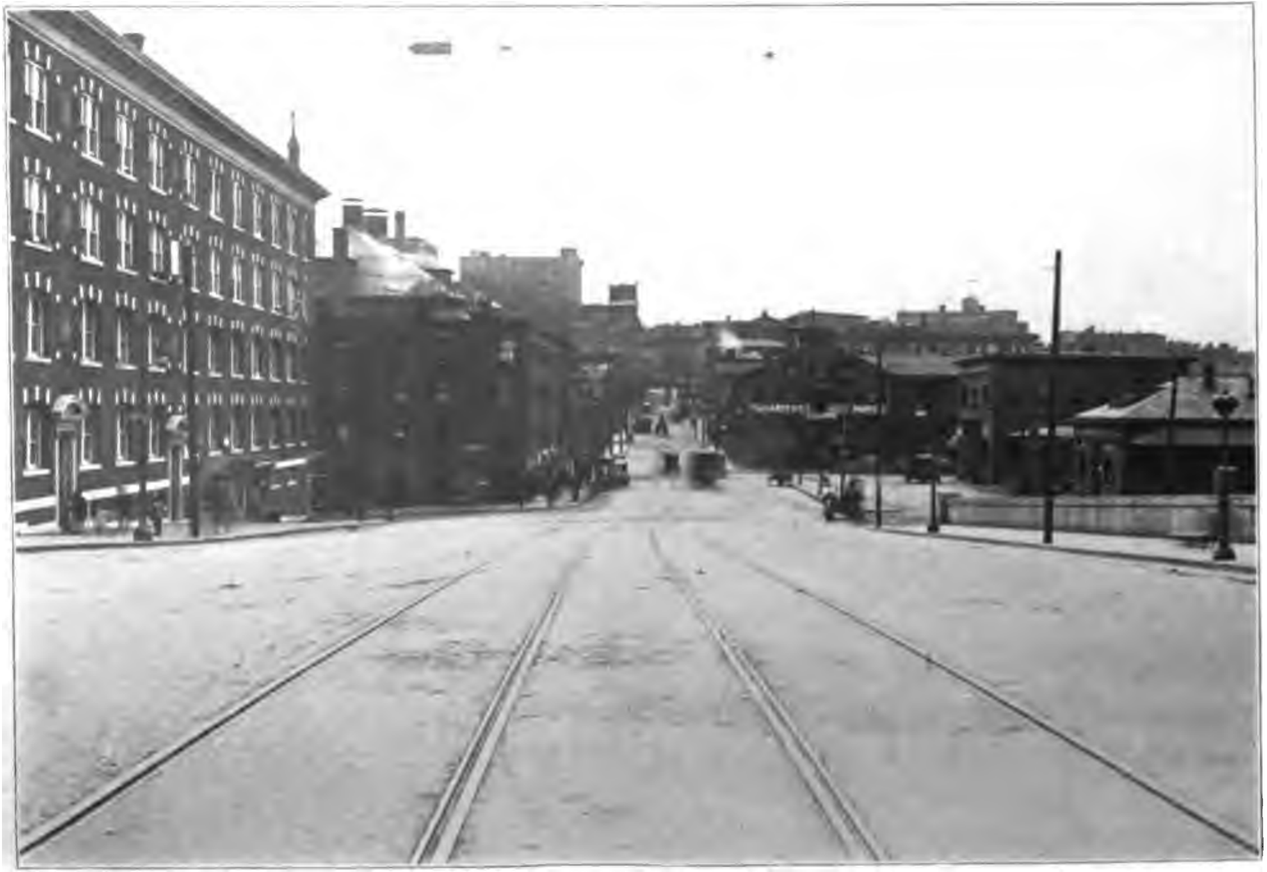
TRACK WORK FOR 1921

New rails will be laid in Main Street from State Street to Morgan Street with new special work at Morgan Street.

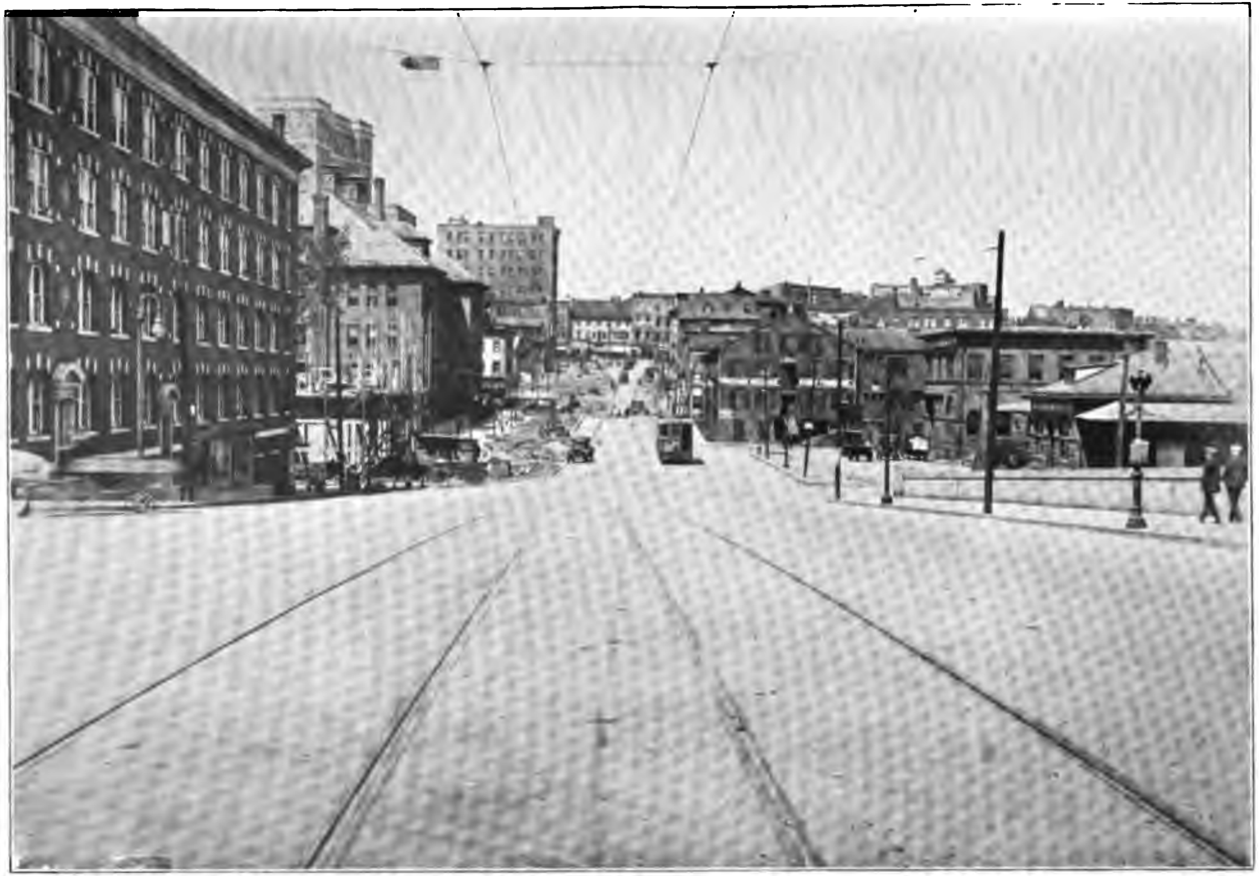
New track will be laid on a center line location of the new 60-foot roadway on Morgan Street. Track in Washington Street from Capitol Avenue southerly leading into Lafayette Street will be set to the new grade to be used in connection with the paving.

MORGAN STREET WIDENING

During the summer and fall of 1920 the widening of this street was advanced by the tearing down of the old buildings within the area formed by the new street lines and cutting off portions of other buildings. The cellars of these old buildings were then filled with material excavated from streets on which permanent pavement was to be laid. Because of settlement in this fill, which was 10 feet deep in places, it was thought advisable not to undertake the paving of this street during the season of 1920. As mentioned above, this work will be done in 1921.



MORGAN STREET BEFORE WIDENING



WORK UNDERWAY ON THE WIDENING OF MORGAN STREET

UNDERGROUND SYSTEM

The streets on which improved pavement was laid during the past year were entirely in the central and older portion of the city, being in a district where the underground systems are more highly developed than in the outlying portions of the city. With the exception of Winthrop and North Streets the duct line work, which it was necessary to install in advance of the paving, consisted in enlarging old lines and building additional manholes. This condition made possible the ordering of nearly two miles of wires placed underground on streets which have not as yet been permanently paved, but which probably will be in the near future; hence completing some of the underground construction a season in advance of the paving work. In view of the high cost to the Public Utility Corporations of this advance construction, the Board of Street Commissioners, however, limited the construction orders to those streets which were to be paved. When construction costs return to their normal state the City should order this work done a season in advance of the paving, if possible. This is essential for two reasons: first, the actual laying of the pavement itself is but the finishing touch to the work and the volume of the underground construction prevents, in some instances, the completion of the pavements in seasonable weather; second, there is the important fact that with the clay soil characteristic of Hartford, the longer time that intervenes between the installation of underground structures and the actual laying of the paving, the more satisfactory the paving will be.

A set of 296 maps drawn to a scale of 20 feet to an inch have been made to date showing the probable positions of underground structures, and are used to solve the problems that arise in assigning locations for underground work. These maps show all sewers, water mains, gas mains, duct lines, street railway tracks, curb lines and street lines. The different types of structures are drawn with different colors, a special color for each type. In assigning locations in new streets, a definite system is adhered to wherever possible. This scheme will make a more efficient use of the available space and prevent the waste of space which the random location of underground structures causes in older streets.

As the city grows it will become necessary to enlarge conduits and mains and the space between the streets and curb lines will be needed, particularly in the more central portions of the city. This need should invite caution against allowing encroachments, particularly vaults beneath the sidewalks that might in the future prove to be obstacles. Larger cities consider it necessary to use this space back of the curbs for sewers and water mains.

During the past year about 50 new maps were made, and the maps previously made were brought up to date. Plans were made of the streets to be paved and locations assigned for new work as early as possible to allow the installation of underground work to precede the actual paving work by as long an interval as possible.

During the past season 4.1 miles of gas and water mains, 4.6 miles of electrical duct lines were installed, for which 74 locations were assigned; the total work being distributed over 58 streets. At the present time the Hartford underground system comprises 158 6 miles of water mains, 158.7 miles of gas mains, 104.4 miles of duct lines and 155.7 miles of sewers.

Fire Department Reservoirs

There are probably very few of Hartford's citizens who realize that there still exist beneath the streets in the central portion of the city some of the old reservoirs which in time past used to contain water for fire fighting purposes. These reservoirs or cisterns were built between 1789 and 1838 of various sizes, but of nearly uniform shape and depth. With the exception of a few that have brown stone under the manhole casting, they were built entirely of brick, floor, sides and arch, all the brick work being plastered inside and out with lime plaster, which, in the five reservoirs that were recently inspected by this department, is in a very good condition today.

The first specific reference in the records of the Common Council to these cisterns is found in the minutes of the meet-

ing of August 9, 1790, when the Council voted:—"that Barnabas Dean, Caleb Bull and Barzillai Hudson be and they are hereby appointed a committee to repair the cistern near the State House in this city, and that they lay their accounts before the committee of accounts and city funds for adjustment." From 1790 to 1825 there were several committees appointed to repair existing cisterns and to investigate and report on the construction of new ones. Reference is made to the means of obtaining water for the cisterns in the report (March 7, 1825) of a committee appointed to decide whether a cistern at the Episcopal Church belonged to the city or not—"that permission was granted by the Episcopal Church to affix spouts and conductors from said church to the well—." On September 10, 1827, the following resolution was passed: "that three reservoirs of brick to contain about 200 hogsheads of water be sunk near the South Brick Church, in some convenient place to receive water from said church, one near the North Church, and one near the Central Church." The Common Council voted (January 8, 1840) "that Gen. William Hayden be paid $682.91 for building reservoir at the Episcopal Church, Main Street."

These reservoirs vary somewhat in diameter from 17.5 to 23.5 feet, but are nearly uniform in depth, about 14 feet. Being built entirely of brick with a very flat arched roof, the enormous increase in the volume and weight of vehicular traffic makes these structures a menace to the traveling public. With modern fire fighting apparatus and water mains these reservoirs are certainly not necessary and should be filled up to avoid serious accidents.

The cut shows the locations of all of these reservoirs of which definite mention is made in the records of the Common Council.

SURVEY DIVISION

The work of this division consists mainly in the field and office work necessary for the layout and construction of new streets or changes in lines or grade on existing streets. Considerable work is also done for the Fire Commissioners, Park Department, High School and Public Buildings Commissions.

MERESTONES

During the past year seventy-eight reinforced concrete "merestones" were made at the City Yard by employees of this Department. Seventy-seven were set in new locations and four old ones were reset to new grades.

NEW STREETS

Surveys were made and layouts prepared for the acceptance of the following streets:

Allendale Road.
Bartholomew Avenue from Olive Street to Flatbush Avenue.
Brookfield Street from Wellington Street to Flatbush Avenue.
Goshen Street.
Hampton Street from Earle Street to Naugatuck Street.
Naugatuck Street.
Nepaug Street.
Rodney Street.
Waterford Street.

NEW STREET, BUILDING AND VERANDA LINES

Layouts were prepared for new street, building and veranda lines in lieu of existing lines on the following streets or on portions of the same:

Asylum Street, between Ann and High Streets.
Broad Street, between Lincoln Street and Allen Place.
Burnham Street, north side, between Blue Hills Avenue and Palm Street.
Chestnut Street, near Albany Avenue.
High Street, west side, Church Street, northerly.
Holcomb Street, near Cornwall Street.
Pavillion Street.
Retreat Avenue.
Spring Street.
Walnut Street, from Edwards Street to Garden Street.
Willow Street, from Capitol Avenue southerly 715 feet.
Wooster Street.

New grades were established in lieu of existing grades on Bartholomew Avenue, from Hamilton Street to Olive Street, Olive Street and Rose Street.

The office work consists principally in the plotting of profiles and drawing of suitable grades for new streets or changes in grade on existing streets, and the preparation of maps for the use of the various commissions. During the past year twenty-two plans and twenty-six profiles were made by this division.

OFFICE DIVISION

Office work, which consists of the general routine work of the department, replies to requests for information preferred by callers at the desk, and assistance requested by other municipal departments, has been of greater volume than the present construction conditions might indicate.

This division has completed several much needed improvements, such as indexing old maps, revising our card indexes and property owners' file, and systematizing various other lines of the service.

PROPERTY MAPS

A detailed description of these maps was given in the twelfth annual report. During the past year we have added three new sections, making a total of 147 sectional maps in this set. For these new sections a complete survey was made of the Wethersfield Avenue and South Meadow district, and a great deal of title searching done to determine property lines in the South Meadows.

Thirteen new tracings were made to replace a like number of old sections.

All official house numbers were indicated on the entire set of tracings.

During the year 630 new buildings were located, measured and plotted. This is an increase of 80 buildings over last year.

For our current set of property maps, which are used by the general public at the counter, thirty-four new maps were compiled. The total of three thousand eight hundred and eighty-seven transfers of real estate were abstracted from the Town Clerk's records and plotted on these maps.

Office records show that two hundred and eighty-five maps were made up and added to our files during the year, besides numerous plans and sketches made for other departments which were not filed.

In connection with the layout of Ann Street extension considerable title searching was done, and assistance given the Corporation Counsel in preparing and hearing the court case connected therewith.

Title searches to determine ownership of gangways were made on Church Street, Front Street, Elm Street, Pearl Street, South Prospect Street and Bodwell Street.

Title searches to determine the status of land on John Street, Village Street, Oliver Street, Ann Street Extension, Jewell Street, Summit Street, State Street, Retreat Avenue and at South Green and the State Capitol, were also made.

House numbers on Bethel, Elizabeth, George, Love Lane, Morgan, Simpson and Windsor Streets were changed and new streets were numbered as developments required. A total of 295 official house number cards were issued.

Fourteen maps were plotted on the map book at the Town Clerk's office from plans filed there for record. Arrangements have recently been made by the Town Clerk to have all maps presented for record, mounted on cards and filed in cases rather than copied in books. This we believe will be an improvement over the present map book system.

The boundaries for 175 liens were described for the Street Department.

Stakes were set for 258 street and building lines. Numerous building line encroachments were detected in most cases resulting in the necessary changes being made by the owner without further action by the city.

Traffic statistics were taken on several streets.

On February 14, 1921, the Common Council passed an ordinance which authorized the including of the cost of street sprinkling or oiling in the general taxes, so that the addition of 0.95 miles in 1920 constitutes the final addition to our sprinkling book. This book now contains a complete list of owners with their addresses and frontages on 115 miles of city streets. This will be posted as usual for a number of years, since it affords a convenient means of ascertaining the ownership of any real estate.

PRIVATE DRAINS

The supervision and inspection of the laying of all drains in the city is done by this department, working under the ordinances of the city and the rules and regulations of the Board of Street Commissioners. The laying of all private drains is done by licensed drain layers, who give bonds to ensure the satisfactory performance of their work. None others are permitted to lay drains.

During the past year sixty drain layers' licenses were issued. Some of these were issued to parties who work on sewers or drains only, some to plumbers who find it very convenient to have drain layer's license in connection with their work, some to general contractors and the remainder to public service corporations.

Up to this date nine thousand five hundred and twenty-three permits have been issued to drain layers. Four hundred and twenty-four permits were issued during the year. These permits issued were for the laying or repairing of all kinds and sizes of drains and short extensions of main sewers. Outside of minor defects tree-roots play a prominent part in causing stoppage in drains. Some of the following were found to cause stoppages last year: tin cans, ashes, rags, sticks, stones and baseballs. Some of these repaired drains were relaid with cast iron pipe. Ten permits were issued for garage drains, seven for lot drains, fourteen for catch basin drains and two hundred and seventeen permits issued for ordinary house drains.

To the public service corporations were issued fifty-one permits for their work during the year. The Hartford Electric Light Company had issued to them nine permits for manhole drains. The Southern New England Telephone Company took out twenty-four permits for manhole drains. The Connecticut Company took out six permits to drain manholes and twelve for switch-box and track drains. The Water Board took out eight permits to drain hydrants and four for blow-off drains.

Under drain layers' rules permits were issued for the laying of sewers and extension of sewers in Branford Street, East Goshen Street, Nepaug Street, West Boulevard, Westbourne Parkway and Winchester Street.

A card index system affords a means for instant reference to all data concerning each drain and to maps upon which these connections are plotted.

TESTING LABORATORY

As is customary the various tests on municipal supplies, such as coal, asphalt, asphaltic mixtures, fluxes, road oils, cements, sand, stone, gravel, brick, rubber fire hose, insulated wire, joint fillers, soap, cylinder oils, lubricants, greases, gasoline, tree spraying compounds and electrolytes were made in this department. Several patented materials having to do with various construction works were tested. Specifications covering the purchase of various materials were drawn up for the other city departments, and advise and suggestions have been made when requested. New methods of testing were subject to study and investigation. As usual the greatest number of tests were made on asphalt for plant control.

As the greatest portion of Hartford's pavements have been laid with Bermudez Lake Asphalt a consideration of some phases of the mining and refining of this asphalt may be of interest.

The so-called Bermudez "Pitch Lake" is located on the western coast of the Gulf of Paris, opposite the island of Trinidad. The only means of approach to Bermudez Lake is by steamers, up the San Juan River through uninhabited forests. The last five miles of the trip is up the Guanoco River, a tributary of the San Juan, which runs within three miles of the deposit, but it is five or six miles to a suitable wharfage site. From Guanoco, the loading point for steamers, a narrow gage railroad leads through dense tropical jungle to the asphalt lake. It is impossible to step from the bed of the railroad without going ankle deep into water. The asphalt is comparatively soft and it is necessary to frequently move the ties of the railroad which traverses the lake.

The asphalt lake extends over 900 acres in swampy lands and it is covered with vegetation, high rank grass, and shrubs and with groves of large palms. It has an irregular shaped surface with a width of about a mile and a half from north to south and about a mile east and west. The deposit varies in depth from two to nine feet, averaging four feet. In the rainy season it is mostly flooded, which renders the mining of the asphalt extremely difficult, and at all times it is very wet so that any excavation made quickly fills up with water. The asphalt results from the exudation of soft asphalt from springs distributed at different points over its area, and constitutes one of the largest deposits of pure asphalt yet discovered.

The consistency of the asphalt varies in different parts of the lake. Where it exudes from springs it is quite soft and gives off gas freely and copiously. The surface of the deposit slowly hardens on exposure to the weather, forming a crust varying from several inches to several feet in thickness, and sufficiently firm to support the weight of a man. The asphalt underneath, however, is still soft and semi-liquid and there are numerous breaks through the surface from which the soft asphalt oozes. At the edge of the lake the asphalt is hard and brittle, due to the evaporation of the volatile constituents by the heat of the sun. Certain portions of the lake have been converted into a cokey mass as a result of fires started either intentionally or accidently.

The asphalt is gathered by hand into dump cars, which are pushed by natives to an elevated track at the edge of the lake, where they are dumped into wooden skips. The skips are hauled on flat cars to the wharf where they are dumped into the hold of the steamer where the material runs together. It is necessary to mine the material out of the hold of the vessel when it reaches the refinery.

It is not of uniform composition in the crude state as it contains varying quantities of water, vegetable matter and mineral matter. In general the water varies from 10 to 50%; vegetable matter from 1 to 6%; mineral matter from 1 to 3%, and bitumen from 45 to 88%. The refined asphalt has an average penetration of 20. The bitumen varies from 92 to 97%; the vegetable matter lies between 1.5 to 5.0%; and the mineral matter from 1.5 to 2.5%.

Refining of the crude asphalt consists of driving off the water in a steam heated still, open at the top, at a temperature of about 350° F. The asphalt then is either drawn off in slack barrels, surface cooled by water to prevent splashing while being hauled around the refinery yard, and shipped direct to the consumer, or it is fluxed before being drawn from the still. In the case of Hartford practically all the fluxing has been done at the local paving plant. Fluxing consists of adding a predetermined quantity of liquid petroleum residuum, or flux, which is bought under specifications insuring a suitable material for paving purposes. When the refined asphalt is fluxed it is called asphalt cement and it is then ready for use.

In conclusion I desire to express appreciation of the cooperation extended by the several other municipal departments, boards and officials, and of the loyal service rendered by my co-workers in this department.

Respectfully submitted,

ROSCOE N. CLARK,

City Engineer.

TABLES

SEWER STATISTICS FOR YEAR ENDING MARCH 31, 1921

Sewers in use March 31, 1920		152.72 miles
Sewers built 1920-1921	14,568.5 ft. = 2.76 miles	
Sewers replaced 1920-1921	226.5 ft. = 0.05 miles	
Net increase in sewers in use	14,342.0 ft. =	2.71 miles
Sewers in use March 31, 1921		155.43 miles

SEWERS BUILT IN 1920-1921 CLASSIFIED BY SIZES AND MATERIALS

Vitrified Tile, 8 inch	452.0 feet
Vitrified Tile, 10 inch	3,499.3 feet
Vitrified Tile, 12 inch	4,583.0 feet
Vitrified Tile, 15 inch	1,534.0 feet
Vitrified Tile, 18 inch	389.5 feet
Vitrified Tile, 20 inch	50.0 feet
Vitrified Tile, 24 inch	2,619.9 feet
	13,127.7 feet
Concrete Pipe, 12 inch	207.0 feet
Reinforced concrete pipe, 30 inch	291.0 feet
Reinforced concrete, 8'x8'0"	716.3 feet
1 reinforced concrete, 7'4"x8'0"	226.5 feet
	14,568.5 feet

DISTRIBUTION OF COST OF SEWERS

Part of cost assumed by City	$36,014.90	= 30.8%
Part of cost assessed on property	68,597.36	= 58.6%
Part of cost privately paid	12,375.00	= 10.6%
	$116,987.26	= 100%

RECORD OF PERMANENT PAVEMENTS IN HARTFORD TO APRIL 1, 1921

Street	Section	Description	Kind	Tracks	Price per sq. yd.	Assessment per Front Ft.	Final Payment	Guarantee Expires
Albany Avenue	Windsor Ave. to East St.	Paved	Sheet Asphalt	D. T.	$2.51	$2.1002	Nov. 12, 1900	Nov. 12, 1905
Albany Avenue	Tunnel to East St.	North side and tracks resurfaced	Sheet Asphalt	D. T.	1.65	By City	Dec. 4, 1909	Dec. 4, 1914
Albany Avenue	East St. to Magnolia St.	Paved	Sheet Asphalt	D. T.	1.69	2.8845	Nov. 21, 1914	Nov. 21, 1919
Albany Avenue	Magnolia to Woodland St.	Paved	Sheet Asphalt	D. T.	1.58	2.6600	Jan. 22, 1917	Jan. 22, 1922
Albany Avenue	Woodland to B'ltimore St.	Paved	Sheet Asphalt	S. &. D	1.81	3.7711	May 8, 1918	May 8, 1923
Albany Avenue	Baltimore St. to City Line	Paved	Bit. surface over macadam	S. T.	*1.14	None	Dec. 1914	Dec. 1919
Albany Avenue	Bl'mfield Av. to Pros. Av.	Paved	Brick	No	*2.60	None	Dec. 1914	Dec. 1919
Allyn Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	2.56	3.5590	June 12, 1899	June 12, 1904
Allyn Street	Trumbull St. to Union Pl.	Resurfaced	Sheet Asphalt	No	1.19	By City	Jan. 9, 1918	Jan. 9, 1923
Amer. & Cent. Rows	East of Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Amer. & Cent. Rows	East of Post Office	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Ann Street	Asylum St. to Allyn St.	Paved	Sheet Asphalt	No	2.56	2.7908	Oct. 10, 1898	Oct. 10, 1903
Arch Street	Prospect St. to Front St.	Paved	Sheet Asphalt	No	4.21	5.4969	Dec. 21, 1920	Dec. 21, 1925
Asylum Street	Spruce St. to Frm'ton Av.	Paved	Granite Block	D. T.	3.09	6.1030	Nov. 14, 1898	July 14, 1899
Ann Street	Allyn St. to Main St.	Paved	Sheet Asphalt	No	1.85	2.8726	Aug. 22, 1917	Aug. 22, 1922
Asylum Street	Spruce to Farmington Av.	Tracks relaid	Granite Block	D. T.	....	....	1911	....
Asylum Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	3.14	2.8680	Nov. 8, 1897	Nov. 8, 1902
Asylum Street	Spruce to Farmington Av.	Paved	Sheet Asphalt	D. T.	2.75	6.1030	Nov. 14, 1898	Nov. 14, 1903
Asylum Street	Ford St. to Spruce St.	Paved	Block Asphalt	D. T.	3.14	4.8955	Sept. 26, 1898	Sept. 26, 1903
Asylum Street	Main St. to Spruce St.	Repaved	Sheet Asphalt	S. & D.	2.28	By City	Oct. 12, 1908	Oct. 12, 1918
Asylum Street	Spruce St. to Garden St.	N. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Spruce St. to Hopkins St.	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	July 23, 1912	July 23, 1917
Asylum Street	Hopkins to Farm'ton Av.	S. side resurfaced	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Asylum Street	Garden St. W. to Header	N. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	June 23, 1914	June 23, 1919
Atheneum Street	Prospect St. to Main St.	Paved	Sheet Asphalt	No	2.49	1.3350	Nov. 9, 1896	Nov. 9, 1901
Atheneum St. So.	Main St. to Prospect St.	Paved	Sheet Asphalt	No	1.60	By City	Nov. 2, 1915	Nov. 2, 1920
Bloomfield Avenue	Albany Ave. to City Line	Paved	Cem. Concrete	S. T.	*1.27	None	Dec. 1914	Dec. 1919
Broad Street	Bridge over Park River	Paved	Sheet Asphalt	No	....	....	1897	....
Broad Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Capitol Avenue	Main St. to Whitman Ct.	Paved	Cem. Concrete	No	1.03	None	....	....
Capitol Avenue	Lafayette St. to Park Riv.	Paved	Sheet Asphalt	D. T.	1.90	1.8393	Nov. 26, 1900	Nov. 25, 1905

SEWER STATISTICS FOR YEAR ENDING MARCH 31, 1921

Sewers in use March 31, 1920		152.72 miles
Sewers built 1920-1921	14,568.5 ft. = 2.76 miles	
Sewers replaced 1920-1921	226.5 ft. = 0.05 miles	
Net increase in sewers in use	14,342.0 ft. =	2.71 miles
Sewers in use March 31, 1921		155.43 miles

SEWERS BUILT IN 1920-1921 CLASSIFIED BY SIZES AND MATERIALS

Vitrified Tile, 8 inch	452.0 feet
Vitrified Tile, 10 inch	3,499.3 feet
Vitrified Tile, 12 inch	4,583.0 feet
Vitrified Tile, 15 inch	1,534.0 feet
Vitrified Tile, 18 inch	389.5 feet
Vitrified Tile, 20 inch	50.0 feet
Vitrified Tile, 24 inch	2,619.9 feet
	13,127.7 feet
Concrete Pipe, 12 inch	207.0 feet
Reinforced concrete pipe, 30 inch	291.0 feet
Reinforced concrete, 8'x8'0"	716.3 feet
1 reinforced concrete, 7'4"x8'0"	226.5 feet
	14,568.5 feet

DISTRIBUTION OF COST OF SEWERS

Part of cost assumed by City	$36,014.90	= 30.8%
Part of cost assessed on property	68,597.36	= 58.6%
Part of cost privately paid	12,375.00	= 10.6%
	$116,987.26	= 100%

Ford Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	D. T.	2.25	By City	Oct. 12, 1908	Oct. 12, 1913
Front Street	State St. to Sheldon St.	Paved	Sheet Asphalt	No	2.16	2.6025	Dec. 9, 1912	Dec. 9, 1917
Front Street	State St. to Morgan St.	Paved	Sheet Asphalt	No	2.15	2.8721	Dec. 5, 1913	Dec. 5, 1918
Gold Street	Main St. to Lewis St.	Paved	Sheet Asphalt	No	2.55	3.0566	Sept. 11, 1898	Sept. 11, 1903
Greenfield Street	Blue Hills Av. to Woodl'd	Paved	Cem. Concrete	No	1.45	None	Apr. 23, 1918	No guarantee
Grove Street	Main St. to Prospect St.	Paved	Sheet Asphalt	No	2.55	2.3179	July 25, 1898	July 25, 1903
Grove Street	Prospect St. to Front St.	Paved	Sheet Asphalt	No	2.16	1.7303	Oct. 23, 1912	Oct. 23, 1917
Hamilton Street	Bridge over Park River	Paved	Sheet Asphalt	No	....	....	1898	....
Hamilton Street	Bridge over Park River	Resurfaced	Sheet Asphalt	No	0.89	By City	June 1, 1914	June 1, 1919
Haynes Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	3.0667	June 27, 1898	June 27, 1903
High Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.6884	Aug. 14, 1899	Aug. 14, 1904
High Street	Church St. to Main St.	Resurfaced	Sheet Asphalt	No	1.27	By City	May 19, 1911	May 19, 1916
High Street	Church St. to Main St.	Widened	Sheet Asphalt	No	3.43	By City	Jan. 8, 1919	Jan. 8, 1924
High Street	Asylum St. to Church St.	Resurfaced	Sheet Asphalt	No	0.89	By City	June 23, 1914	June 23, 1919
Hopkins Street	Broad St. to Asylum St.	Paved	Sheet Asphalt	No	2.58	2.3865	June 12, 1899	June 12, 1904
Hudson Street	Bridge over Park River	Paved	Sheet Asphalt	No	1.99	By City	Jan. 8, 1919	Jan. 8, 1924
Huyshope Avenue	Charter O Av. to Masseek	Paved	Sheet Asphalt	S. T.	3.43	4.4663	Aug. 14, 1918	Aug. 14, 1923
Jewell, Trumbull & Wells Streets	Main St. to Pearl St.	Paved	Sheet Asphalt	No	2.91	5.436	Jan. 13, 1920	Jan. 13, 1925
Kilbourn Street	Charles St. to Conn. Blvd.	Paved	Granite Block	No	4.03	6.2049	Dec. 18, 1917	Dec. 18, 1918
Kilbourn Street	Front St. to Charles St.	Paved	Sheet Asphalt	No	1.85	2.0632	Aug. 22, 1917	Aug. 22, 1922
Kinsley Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.56	1.9910	Oct. 10, 1898	Oct. 10, 1903
Laurel Street	Bridge over Park River	Brick paved	Brick	S. T.	....	....	1894	....
Laurel Street	Bridge over Park River	Repaved	Brick	S. T.	2.40	By City	July 11, 1900	....
Lewis Street	Pearl St. to Gold St.	Paved	Sheet Asphalt	No	2.51	1.808	Sept. 24, 1900	Sept. 24, 1905
Main Street	Arch St. to Morgan St.	Paved	Sheet Asphalt	D. T.	2.49	5.4887	Dec. 14, 1896	Dec. 14, 1901
Main Street	Morgan St to Windsor Av	Paved	Sheet Asphalt	D. T.	2.70	4.6395	Oct. 11, 1897	Oct. 11, 1902
Main Street	Wyllys St. to Arch St.	Paved	Sheet Asphalt	D. T.	2.66	4.5750	Oct. 25, 1897	Oct. 25, 1902
Main Street	West of tracks along east side of South Green	Resurfaced	Sheet Asphalt	D. T.	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Across S. end of S. Green	Resurfaced	Sheet Asphalt	No	0.97	By City	Jan. 22, 1917	Jan. 22, 1922
Main Street	Wyllys to Charter Oak Av	E. side resurfaced	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Main Street	State St. north	Tracks repaved	Wood Block	D. T.	....	....	1903	....
Main Street	Engine H. 1 to B'ckingh'm	Tracks resurfac'd	Sheet Asphalt	D. T.	....	....	1916	....
Main Street	Engine H 1 to Wells St.	W. side resurfac'd	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Charter O Av to Athen'm	E. side resurfaced	Sheet Asphalt	D. T.	1.59	By City	Nov. 16, 1910	Nov. 16, 1915
Main Street	Buckingham St. to Atheneum St. south	Tracks resurfac'd	Sheet Asphalt	D. T.	....	....	1916	....
Main Street	Atheneum St. S. to Pearl	Tracks resurfac'd	Sheet Asphalt	D. T.	....	....	1917	

RECORD OF PERMANENT PAVEMENTS IN HARTFORD TO APRIL 1, 1921 (Continued)

Street	Section	Description	Kind	Tracks	Price per sq. yd.	Assessment per Front Ft.	Final Payment	Guarantee Expires
Capitol Avenue	Lafayette St. to Broad St	N. side resurfaced	Sheet Asphalt	D. T.	1.65	By City	July 11, 1910	July 11, 1915
Capitol Avenue	Lafayette St. to Broad St	S. side resurfaced	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Broad St. to Park River	Both sides resurf.	Sheet Asphalt	D. T.	1.27	By City	Oct. 4, 1911	Oct. 4, 1916
Capitol Avenue	Park River to Laurel St.	Paved	Sheet Asphalt	D. T.	2.71	2.2816	Nov. 10, 1909	Nov. 10, 1914
Capitol Avenue	Bridge over Park River	Paved	Brick Block	S. T.	....	....	1895	....
Capitol Avenue	Bridge over Park River	Repaved	Wood Block	S. T.	0.65	By City	Dec. 6, 1911	No guarantee
Capitol Avenue	Park Ter. to Sigourney St.	Wid'd & repaved	Sheet Asphalt	D. T.	1.66	By City	Jan. 22, 1917	Jan. 22, 1922
Capitol Avenue Ext.	Bridge over Park River	Paved	Sheet Asphalt	No	1.60	By City	Jan. 13, 1920	Jan. 13, 1925
Central Row	Main St. to Post Office	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
Central Row	Main St. to Post Office	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
Chandler Street	New Britain Ave. N.	Paved	Cem. Concrete	No	1.29	None	....	....
Charles Street	Kilbourn St. to Morgan	Paved	Sheet Asphalt	No	4.21	3.5966	Dec. 21, 1920	Dec. 21, 1925
Church Street	Main St. to Trumbull St.	Paved	Sheet Asphalt	No	2.59	2.1163	Nov. 8, 1897	Nov. 8, 1902
Church Street	Main St. to Trumbull St.	Resurfaced	Sheet Asphalt	No	1.67	By City	July 28, 1909	July 28, 1914
Church Street	Main St. to Trumbull St.	Wid.& part resurf	Sheet Asphalt	No	2.15	By City	Jan. 8, 1919	No guarantee
Church Street	Trumbull St. to Union Pl.	Paved	Sheet Asphalt	No	1.58	1.8608	Jan. 22, 1917	Jan. 22, 1922
Church Street	Trumbull St. to High St.	Part widened	Sheet Asphalt	No	2.15	By City	Jan. 8, 1919	No guarantee
Church Street	Trumbull St. to High St.	Part widened	Sheet Asphalt	No	2.15	By City	Jan. 13, 1920	No guarantee
Church Street	High St. to Union Place	Widened	Sheet Asphalt	No	2.15	By City	Jan. 8, 1919	No guarantee
Church Street	Union Pl. to Spruce St.	Paved	Sheet Asphalt	No	2.51	3.001	Nov. 26, 1900	Nov. 26, 1905
Church Street	Union Pl. to Spruce St.	Resurfaced	Sheet Asphalt	No	1.39	By City	Sept. 29, 1913	Sept. 29, 1918
Church Street	Spruce St. westerly	Paved	Granite Block	No	3.63	4.1578	Oct. 15, 1913	Oct. 15, 1914
Connecticut Blvd.	State St. to Ferry St.	Paved	Sheet Asphalt	D. T.	1.58	2.8939	Jan. 22, 1917	Jan. 22, 1922
Connecticut Blvd.	Ferry St. to Morgan St.	Paved	Sheet Asphalt	D. T.	4.21	7.4386	Dec. 21, 1920	Dec. 21, 1925
Farmington Ave.	Asylum Av. to Woodl'd St.	Paved	Sheet Asphalt	D. T.	2.59	2.4274	Nov. 13, 1899	Nov. 13, 1904
Farmington Ave.	Asylum Ave. to Sigourney	Full width resurf	Sheet Asphalt	D. T.	1.39	By City	Dec. 5, 1913	Dec. 5, 1918
Farmington Ave.	Sig'rney St. to Woodland	Both sides resurf	Sheet Asphalt	D. T.				
Farmington Ave.	Sig'rney St. to Woodland	Tracks relaid	Sheet Asphalt	D. T.	....	....	1909	....
Farmington Ave.	Woodland St. to Tremont	Paved	Sheet Asphalt	D. T.	2.59	3.7018	Dec. 12, 1910	Dec. 12, 1915
Farmington Ave.	Tremont St. to Pros. Av.	Paved	Sheet Asphalt	D. T.	2.29	3.4867	Dec. 5, 1911	Dec. 5, 1916
Ferry Street	Front St. to foot of Hill	Paved	Sheet Asphalt	No	1.85	1.8246	Aug. 22, 1917	Aug. 22, 1922
Ferry Street	Foot of Hill to Conn. Blvd		Granite Block	No	4.03	3.9341	Dec. 18, 1917	Dec. 18, 1918

Park Street	Under Railroad Bridge	Repaved	Granite Block	D. T.	....	By Railr'd	1912	....
Park Street	Bridge over Park River	Paved	Sheet Asphalt	D. T.	....	....	1898	....
Park Street	Bridge over Park River	Relaid	Sheet Asphalt	D. T.	....	By Railr'd	1912	....
Pearl Street	Main St. to Ford St.	Paved	Block Asphalt	S. T.	2.89	3.8380	July 22, 1895	July 22, 1900
Pearl Street	Main St. to Ford St.	Repaved	Sheet Asphalt	S. T.	2.70	By City	Sept. 10, 1903	Sept. 10, 1913
Pearl Street	Main St. to Ford St.	Tracks relaid	Sheet Asphalt	D. T.	....	....	1910	....
Pleasant Street	Winthrop St. to Main St.	Paved	Sheet Asphalt	No	2.56	2.3373	July 11, 1898	July 11, 1903
Pleasant Street	Winthrop to Windsor St.	Paved	Granite Block	No	4.03	5.2958	Dec. 18, 1917	Dec. 18, 1918
Pleasant Street	Winthrop St. to Railroad	Paved	Sheet Asphalt	No	2.15	2.7830	Dec. 5, 1913	Dec. 5, 1918
Portland Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	3.42	3.5832	Jan. 8, 1919	Jan. 8, 1924
Pratt Street	Main St. to Trumbull St.	Paved	Brick	No	....	By City	1892	....
Pratt Street	Main St. to Trumbull St.	Surfaced	Sheet Asphalt	No	1.68	1.4285	Aug. 14, 1899	Aug. 14, 1904
Pratt Street	Main St. to Trumbull St.	Repaved	Sheet Asphalt	No	2.19	By City	Nov. 26, 1917	Nov. 26, 1922
Prospect Street	Atheneum St. to Cent. R.	Paved	Sheet Asphalt	No	2.55	2.5256	July 25, 1898	July 25, 1903
Prospect Street	Grove St. to Central Row	Resurfaced	Sheet Asphalt	No	1.27	By City	Oct. 23, 1912	Oct. 23, 1917
Prospect Street	Grove St. to Atheneum St.	Resurfaced	Sheet Asphalt	No	1.95	By City	Jan. 13, 1920	Jan. 13, 1925
Prospect Street	Atheneum St. to Park Riv.	Paved	Sheet Asphalt	No	4.21	6.7478	Dec. 21, 1920	Dec. 21, 1925
Prospect Street	Bridge over Park River	Paved	Sheet Asphalt	No	1.99	By City	Jan. 8, 1919	Jan. 8, 1924
Prospect Street	Park River to Sheldon St.	Paved	Sheet Asphalt	No	2.91	6.7353	Jan. 13, 1920	Jan. 13, 1925
Ridgefield Street	Greenfield St. to Plainfield	Paved	Cem. Concrete	No	1.49	None	Mar. 1917	No guarantee
Ridgefield Street	Plainfield St to Thomast'n	Paved	Cem. Concrete	No	1.69	None	....	....
Scarborough Street	W. Road Asylum St. N.	Paved	Cem. Concrete	No	1.49	None	Mar. 1917	No guarantee
Scarborough Street	E. Road Asylum St. N.	Paved	Cem. Concrete	No	1.12	None	....	....
Scarborough Street	W. Road Albany Ave. S.	Paved	Cem. Concrete	No	1.45	None	Apr. 23, 1918	No guarantee
Sequassen Street	Huyshope Av to foot hill	Paved	Sheet Asphalt	No	1.77	3.3817	Dec. 18, 1917	Dec. 18, 1922
Sequassen Street	Foot of hill to Van Dyke A	Paved	Granite Block	No	4.03	8.1669	Dec. 18, 1917	Dec. 18, 1918
Sheldon Street	Main St. to Union St.	Paved	Sheet Asphalt	No	2.20	2.5747	Oct. 4, 1911	Oct. 4, 1916
Sheldon Street	Union St. to Commerce St	Paved	Sheet Asphalt	No	2.16	3.0100	Oct. 23, 1912	Oct. 23, 1917
Sheldon Street	Commerce to Van Dyke A	Paved	Sheet Asphalt	No	1.77	2.2672	Dec. 18, 1917	Dec. 18, 1922
Spruce Street	Asylum St. to Church St.	Paved	Sheet Asphalt	No	2.51	3.0163	Oct. 1, 1900	Oct. 1, 1905
Spruce Street	Church St. northerly	Paved	Granite Block	No	3.63	4.3221	Oct. 15, 1913	Oct. 15, 1914
State Street	Main St. to Commerce St.	Paved	Block Asphalt	D. T.	3.04	5.5600	Oct. 12, 1896	Oct. 12, 1901
State Street	City Hall to Main St.	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. westerly	Repaved	Sheet Asphalt	D. T.	2.71	By City	Dec. 1, 1909	Dec. 1, 1914
State Street	Front St. to Conn. Blvd	Repaved	Sheet Asphalt	D. T.	2.16	By City	Dec. 9, 1912	Dec. 9, 1917
State Street	Conn. Blvd. to Commerce	Covered	Macadam	No	....	By City	1908	....
State Street	Front St. to City Hall	Repaved	Granite Block	D. T.	3.79	By City	Dec. 1, 1909	Dec. 1, 1910
Summit Street	Zion St. south	Paved	Cem. Concrete	No	1.07	None	....	....
Summit Street	N. Britain Av to Trin. Col	Paved	Cem. Concrete	No	1.12	None	....	....

RECORD OF PERMANENT PAVEMENTS IN HARTFORD TO APRIL 1, 1921 (Continued)

Street	Section	Description	Kind	Tracks	Price per sq. yd.	Assessment per Front Ft.	Final Payment	Guarantee Expires
Main Street	Jefferson St. to Park St.	W. side resurfac'd	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Windsor St. to Wind'r Av.	N. side resurfac'd	Sheet Asphalt	D. T.	1.27	By City	Oct. 25, 1911	Oct. 25, 1916
Main Street	Jefferson St. to Park St.	Tracks resurfac'd	Sheet Asphalt	D. T.	....	....	1912	
Main Street	Wyllys to N. end S. Green	Tracks resurfac'd	Sheet Asphalt	D. T.	....	....	1908	
Main Street	Park St. to Engine H. 1	W. side resurfac'd	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Triangle N. end S. Green	Resurfaced	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Atheneum St. to Cent. R.	E. side resurfac'd	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	State St. to Windsor St.	E. side resurfac'd	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Wells St. to Ann St.	W. side resurfac'd	Sheet Asphalt	D. T.	1.27	By City	Dec. 3, 1912	Dec. 3, 1917
Main Street	Ann St. to Lumber St. North 200' on Windsor Av	Whole St. resurf. E. side resurfac'd	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Maple Avenue	Congress St. to Morris St.	Paved	Sheet Asphalt	D. T.	1.58	2.6300	Jan. 22, 1917	Jan. 22, 1922
Maple Avenue	Campfield Av to City Line	Paved	Cem. Concrete	No	0.99	None	Sept. 1915	Sept. 1920
Market Street	State St. to Temple St.	Paved	Sheet Asphalt	S. T.	2.56	3.6700	Oct. 10, 1898	Oct. 10, 1903
Market Street	Temple St. to Morgan St.	Paved	Sheet Asphalt	S. T.	2.56	2.3270	Oct. 9, 1899	Oct. 9, 1904
Market Street	Morgan St. to Pleasant St	Paved	Sheet Asphalt	No	1.69	2.0173	Nov. 21, 1914	Nov. 21, 1919
Market Street	State St. to Morgan St.	W. side and tracks resurfaced	Sheet Asphalt	S. T.	1.65	By City	Aug. 4, 1909	Aug. 4, 1914
Market Street	Temple St. to Morgan St.	E. side resurfac'd	Sheet Asphalt	S. T.	0.89	By City	June 23, 1914	June 23, 1919
Market Street	State St. to Morgan St.	Tracks resurfac'd	Sheet Asphalt	S. T.	....	....	1914	....
Marsh Court	Market St. to Village St.	Paved	Sheet Asphalt	No	2.15	1.1455	Dec. 5, 1913	Dec. 5, 1918
Morgan Street	Market St. to Main St.	Paved	Granite Block	S. T.	3.09	2.1525	Dec. 27, 1898	Aug. 27, 1899
Morgan Street	Intersection with Front St	Paved	Granite Block	D. T.	....	By City	Dec. 5, 1913	No guarantee
Morgan Street	Front St. to Market St.	Paved	Sheet Asphalt	D. T.	2.15	3.1641	Dec. 5, 1913	Dec. 5, 1918
Morgan Street	Front St. to Conn. Blvd.	Paved	Granite Block	D. T.	5.32	15.4432	Dec. 8, 1919	Dec. 8, 1920
Morgan Street	Conn Blvd. to Bridge	Paved	Sheet Asphalt	D. T.	2.91	12.0769	Jan. 13, 1920	Jan. 13, 1925
Mulberry Street	Main St. to Wells St.	Paved	Sheet Asphalt	No	2.55	2.6970	Nov. 14, 1898	Nov. 14, 1903
New Britain Ave.	Clermont St. to City Line	Paved	Cem. Concrete	S. T.	1.72	None	1918	
North Street	Windsor St. to Village St.	Paved	Sheet Asphalt	No	1.85	2.0418	Aug. 22, 1917	Aug. 22, 1922
North Street	Village St. to Railroad	Paved	Sheet Asphalt	No	4.21	4.9187	Dec. 21, 1920	Dec. 21, 1925
Park Street	Main St. to Zion St.	Paved	Sheet Asphalt	D. T.	1.58	1.6267	Jan. 22, 1917	Jan. 22, 1922
Park Street	Under Railroad Bridge	Paved	Granite Block	S. T.	[illegible]	By City	[illegible]	[illegible]

PERMANENT PAVEMENTS IN HARTFORD APRIL 1, 1921

Street	Section	Tracks	Sheet Asphalt Sq. Yds.	Granite Block Sq. Yds.	Asphalt Block Sq. Yds.	Brick Sq. Yds.	Wood Block Sq. Yds.	Bituminous surf. over macadam Sq. Yds.	Cement Concrete Sq. Yds.	Length in Miles
Albany Avenue	Baltimore St. to City Line	No						11441.0		0.69
Albany Avenue	Windsor Ave. to Baltimore St.	D. T.	44683.00							1.48
Albany Avenue	Bloomfield Ave. to Prospect Ave.	No				801.0				0.09
Allyn Street	Trumbull St. to Union Pl.	No	6041.00							0.29
Amer. and Cent. Rows	East of Post Office	D. T.		1885.00						0.03
Ann Street	Asylum St. to Main St.	No	6647.70							0.38
Arch Street	Prospect St. to Front St.	No	2419.3							0.13
Asylum Street	Spruce St. to Farmington Ave.	D. T.		4658.70						0.16
Asylum Street	Spruce St. to Farmington Ave.	D. T.	1701.60							
Asylum Street	Main St. to Spruce St.	S. T. & D. T	10351.20							0.48
Atheneum Street	Prospect St. to Main St.	No	558.30							0.07
Atheneum Street So.	Main St. to Prospect St.	No	1387.00							0.07
Bloomfield Avenue	Albany Ave. to City Line	S. T.							6763.0	0.42
Broad Street	Bridge over Park River	No	451.50							0.02
Capitol Avenue	Main St. to Whitman Ct.	No							1000.0	0.06
Capitol Avenue	Lafayette St. to Laurel St.	D. T.	19901.40							0.81
Capitol Avenue Ext.	Bridge over Park River	No	309.50							0.01
Central Row	Main St. to Post Office	D. T.	2000.00							0.05
Chandler Street	New Britain Ave. north	No							326.0	0.02
Charles Street	Kilbourn St. to Morgan St.	No	2026.2							0.17
Church Street	Main St. to Spruce St.	No	9448.40							0.46
Church Street	Spruce St. westerly	No		238.20						0.01
Connecticut Blvd.	State St. to Morgan St.	D. T.	10426.9							0.30
Farmington Avenue	Asylum St. to Prospect Ave.	D. T.	42630.40							1.60
Ferry Street	Front St. to Foot of Hill	No	907.50							0.06
Ferry Street	Foot of Hill to Conn. Boulevard	No		425.60						0.03
Ford Street	Pearl St. to Asylum St.	D. T.	2658.90							0.10
Front Street	Morgan St. to Sheldon St.	No	9774.70							0.56
Gold Street	Main St. to Lewis St.	No	1458.00							0.08
Greenfield Street	Woodland St. to Blue Hills Ave.	No							4301.0	0.24

Street	Section	Description	Kind	Tracks	Price per sq. yd.	Assessment per Front Ft.	Final Payment	Guarantee Expires
Talcott Street	Market St. to Main St.	Paved	Granite Block	No	3.09	2.7184	Sept. 26, 1898	May 26, 1899
Talcott Street	Market St. to Main St.	Paved	Sheet Asphalt	No	2.75	2.7184	Sept. 26, 1898	Sept. 26, 1903
Talcott Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	1.7221	Nov. 21, 1914	Nov. 21, 1919
Talcott Street	Front St. to Conn. Blvd.	Paved	Granite Block	No	7.00	8.3319	Nov. 5, 1920	Nov. 5, 1921
Temple Street	Main St. to Market St.	Paved	Sheet Asphalt	No	2.56	1.9753	Oct. 10, 1898	Oct. 10, 1903
Temple Street	Front St. to Market St.	Paved	Sheet Asphalt	No	1.69	2.7883	Nov. 21, 1914	Nov. 21, 1919
Trinity Street	Capitol Ave. to Ford St.	Paved	Sheet Asphalt	S. T.	2.59	3.3084	Dec. 13, 1897	Dec. 13, 1902
Trinity Street	Capitol Ave. to Bridge	East side and tracks resurfaced	Sheet Asphalt	D. T.	1.90	By City	July 7, 1908	July 7, 1913
Trinity Street	Capitol Ave. to North end of Bridge	W. side resurfac'd	Sheet Asphalt	D. T.	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Asylum St. to Main St.	Paved	Sheet Asphalt	No	2.56	3.9690	July 11, 1898	July 11, 1903
Trumbull Street	Pearl St. to Asylum St.	Paved	Block Asphalt	No	3.14	6.7600	June 27, 1898	June 27, 1903
Trumbull Street	Pearl St. to Asylum St.	Repaved	Sheet Asphalt	No	1.55	By City	Dec. 30, 1915	Dec. 30, 1920
Trumbull Street	Church St. to Pratt St.	Resurfaced	Sheet Asphalt	No	0.89	By City	Nov. 21, 1914	Nov. 21, 1919
Trumbull Street	Pearl St. to Hicks St.	Paved	Granite Block	No	3.56	5.4946	Nov. 22, 1915	Nov. 22, 1916
Union Place	Asylum St. to Church St.	Paved	Granite Block	No	3.37	....	1894	....
Van Dyke Avenue	Sheldon St. to **Masseek** St	Paved	Sheet Asphalt	No	1.77	2.1047	Dec. 18, 1917	Dec. 18, 1922
Village Street	City Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	June 12, 1899	June 12, 1904
Village Street	Windsor St. north	Paved	Sheet Asphalt	No	2.56	3.8233	Nov. 14, 1898	Nov. 14, 1903
Village Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.55	1.3329	Dec. 30, 1915	Dec. 30, 1920
Wethersfield Ave.	Wyllys St. to Bond St.	Paved	Sheet Asphalt	D. T.	1.55	2.3724	Dec. 30, 1915	Dec. 30, 1920
Wethersfield Ave.	Bond St. to City Line	Paved	Sheet Asphalt	D. T.	3.04	4.6428	Nov. 21, 1919	Nov. 21, 1924
Windsor Avenue	Main St. to Capen St.	Paved	Sheet Asphalt	D. T.	2.59	2.8253	Sept. 11, 1899	Sept. 11, 1904
Windsor Avenue	Albany Ave. to Mather St.	W. side resurfac'd	Sheet Asphalt	D. T.	0.89	By City	July 21, 1914	July 21, 1919
Windsor Avenue	E. side Tunnel to Canton	Resurfaced	Sheet Asphalt	D. T.	1.99	By City	Jan. 9, 1918	Jan. 9, 1923
Windsor Avenue	Main St. to Canton St.	Tracks relaid	Sheet Asphalt	D. T.	....	....	1907	
Windsor Avenue	Canton St. to Capen St.	Tracks relaid	Sheet Asphalt	D. T.	....	....	1910	....
Windsor Avenue	Capen St. to Westland St.	Paved	Sheet Asphalt	D. T.	1.81	2.2346	May 8, 1918	May 8, 1923
Windsor Avenue	Westland St. to City Line	Paved	Sheet Asphalt	D. T.	3.43	4.1037	Jan. 8, 1919	Jan. 8, '1924
Windsor Avenue	Main St. to Park St.	Paved	Granite Block	No	3.09	3.8233	Nov. 14, 1898	July 14, 1899
Windsor Street	The Park to Pleasant St.	Paved	Sheet Asphalt	No	2.56	3.8233	July 25, 1898	July 25, 1903
Windsor Street	Pleasant St. to Avon St.	Paved	Sheet Asphalt	No	1.69	2.5563	Nov. 21, 1914	Nov. 21, 1919
Winthrop Street	Pleasant St. to Railroad	Paved	Sheet Asphalt	No	4.21	5.0224	Dec. 21, 1920	Dec. 21, 1925
Woodland Street	Albany Ave. to Greenfield	Paved	Cem. Concrete	No	1.12	None	....	....

* Includes excavation.

Pleasant Street	Winthrop St. to Main St.	No	1010.40							0.07
Pleasant Street	Winthrop St. to Windsor St.	No		1286.50						0.08
Pleasant Street	Windsor St. to Railroad	No	2239.70							0.14
Portland Street	Pleasant St. to Avon St.	No	2708.20							0.19
Pratt Street	Main St. to Trumbull St.	No	1438.00							0.11
Prospect Street	Central Row to Sheldon St.	No	5157.6							0.28
Ridgefield Street	Greenfield St. to Thomaston St.	No							9148.0	0.60
Sequassen Street	Huyshope Ave. to Foot of Hill	No	1819.40							0.08
Sequassen Street	Foot of Hill to Van Dyke Ave.	No		489.10						0.02
Scarborough Street	Asylum St. to Albany Ave.	No							12278.0	0.63
Sheldon Street	Main St. to Van Dyke Ave.	No	9041.70							0.54
Spruce Street	Asylum St. to Church St.	No	2286.00							0.12
Spruce Street	Church St. northerly	D. T.		1527.80						0.09
State Street	City Hall to Main St.	D. T.	1395.00							0.04
State Street	Front St. to Conn. Boulevard	D. T.	2609.90							0.09
State Street	Front St. westerly	D. T.	343.10							....
State Street	Front St. to City Hall	No		4501.80						0.15
Summit Street	Zion St. south	No							306.0	0.02
Summit Street	New Britain Av. to Trinity College	No							4297.0	0.33
Talcott Street	Market St. to Main St.	No		950.40						0.09
Talcott Street	Market St. to Main St.	No	340.20							....
Talcott Street	Market St. to Front St.	No	1279.10							0.09
Talcott Street	Front St. to Conn. Boulevard	No		1012.1						0.06
Temple Street	Main St. to Front St.	No	3084.70							0.19
Trinity Street	Capitol Ave. to Ford St.	S. T. & D. T	6947.80							0.27
Trumbull Street	Pearl St. to Main St.	No	6718.90							0.29
Trumbull Street	Pearl St. to Hicks St.	No		1096.40						0.05
Union Place	Asylum St. to Church St.	No		3267.00						0.12
Van Dyke Avenue	Sheldon St. to Masseek St.	No	4460.00							0.32
Village Street	Windsor St. to Avon St.	No	3951.60							0.29
Wethersfield Avenue	Wyllys St. to City Line	D. T.	48487.90							1.93
Windsor Avenue	Main St. to City Line	D. T.	46636.30							2.18
Windsor Street	Main St. to the Park	No		2018.10						0.06
Windsor Street	The Park to Avon St.	No	5998.30							0.29
Winthrop Street	Pleasant St. to Railroad	No	2226.2							0.14
Woodland Street	Albany Ave. to Greenfield Ave.	No							2780.0	0.16
TOTALS			481792.8	29270.3	718.40	1212.0	500.00	1144.10	58577.0	26.62

Total Yardage all Pavements = 583511.5 square yards.

Total Length—Asphalt, 20.41 miles; Granite Block, 1.18 miles; Wood Block, 0.06 miles; Asphalt Block, 0.05 miles; Brick, 0.11 miles; Bituminous Surface over Macadam, 0.69 miles; Cement Concrete, 4.12 miles.

Total Length all Pavements—26.62 miles.

STREETS PAVED DURING YEAR ENDING MARCH 31, 1921

Street	Section	Contractor	Pavement	Length in Feet	Total Number of Sq. Yds.	Asphalt or Granite Block Sq. Yd.	Contract Prices Concrete Cu. Yd.	Contract Prices Excavation Cu. Yd.	Cost of Pavement and Headers. (Conn. Co. costs not included)	Assessment per Front Foot	Date of Final Payment	Guarantee Expires
Arch Street	Prospect Street to Front Street	Ed. Balf Co.	Sheet Asphalt	672	2419.3	$1.93	$13.65	$1.85	$11,172.86	$5.4968968	Dec. 21, 1920	Dec. 21, 1925
Charles Street		Ed. Balf Co.	Sheet Asphalt	890	2026.2	1.93	13.65	1.85	9.591.99	3.5966478	Dec. 21, 1920	Dec. 21, 1925
Conn. Boulevard	Ferry Street to Morgan Street	Ed. Balf Co.	Sheet Asphalt	1140	7635.8	1.93	13.65	1.85	24 263.05	7.43866	Dec. 21, 1920	Dec. 21, 1925
North Street	Village Street to Railroad	Ed. Balf Co.	Sheet Asphalt	570	1769.2	1.93	13.65	1.85	8.320.28	4.9187284	Dec. 21, 1920	Dec. 21, 1925
Prospect Street	Park Riv Br'ge to Atheneum St.	Ed. Balf Co.	Sheet Asphalt	672	2644.3	1.93	13.65	1.85	12,236.87	6.7478742	Dec. 21, 1920	Dec. 21, 1925
Talcott Street	Front St. to Conn. Boulevard	O'Neil Bros.	Granite Block	356	1012.1	5.00	12.00	1.75	7,783.15	8.3318935	Nov. 5, 1920	Nov. 5, 1925
Winthrop Street		Ed. Balf Co.	Sheet Asphalt	750	2226.2	1.93	13.65	1.85	11,111.40	5.0224422	Dec. 21, 1920	Dec. 21, 1925

Totals—New Work, 0.96 miles .... = 5050 ft. 19733.1 sq. yds. $84,479.60

LIST OF ASPHALTED STREETS GIVING KIND OF ASPHALT USED AND YEAR LAID

Street	Location	Asphalt Used	Year Laid
Albany Avenue	South side, Lumber St. to East St.	Trinidad	1900
Albany Avenue	North side and tracks, Lumber St. to East St.	California (Atlas)	1909
Albany Avenue	Both sides and tracks, East St. to 50 ft. east of Magnolia St.	Aztec (Mexican)	1914
Albany Avenue	Magnolia St. to Woodland St.	Aztec (Mexican)	1916
Albany Avenue	Woodland St. to Baltimore St.	Bermudez	1917
Allyn Street	Trumbull St. to Union Pl.	Bermudez	1917
Ann Street	Asylum St. to Allyn St.	Trinidad	1898
Ann Street	Allyn St. to Main St.	Bermudez	1917
Arch Street	Prospect St. to Front St.	Bermudez	1920
Asylum Street	Main St. to Spruce St.	Bermudez	1908
Asylum Street	Strips on both sides, Spruce St. to Garden and Hopkins Sts.	Bermudez and California (Atlas)	1912
Asylum Street	Strip on north side Garden St. westerly to header at macadam	Aztec (Mexican)	1914
Asylum Street	South side, Hopkins St. to Farmington Ave.	Bermudez and 5% California	1913
Atheneum Street	Prospect St. to Main St.	Trinidad	1896
Atheneum St., So.	Main St. to Prospect St.	Aztec (Mexican)	1915
Broad Street	Bridge over Park River	Bermudez and 5% California	1914
Capitol Avenue	Both sides, Park River Bridge to Laurel St.	Bermudez	1909
Capitol Avenue	North side, Hungerford St. to Lafayette St.	Bermudez	1910
Capitol Avenue	South side and south track, Broad St. to Lafayette St.	Bermudez	1911
Capitol Avenue	North track and dummy, 150 ft. east of Oak St. to Lafayette St.	Bermudez	1911
Capitol Avenue	Both sides, Broad St. to Park River Bridge	Bermudez	1911
Capitol Avenue	Tracks, Park River Bridge to Laurel St.	California (Atlas)	1909
Capitol Avenue	North side, Hungerford St. to Broad St.	California (Atlas)	1910
Capitol Avenue	Park Terrace to Sigourney St.	Aztec (Mexican)	1916–1917
Capitol Avenue	Intersection at Lafayette St.	California (Atlas)	1911
Capitol Ave. Ext.	Bridge	Bermudez	1919
Central Row	Main St. to Granite Block	Bermudez (small area California)	1909
Charles Street	Kilbourn St. to Morgan St.	Bermudez	1920
Church Street	Main St. to Trumbull St.	California (Atlas)	1909
Church Street	Union Pl. to Spruce St.	Bermudez and 5% California	1913
Church Street	Intersection at Spruce St.	Trinidad and Bermudez, 50 and 50%	1913
Church Street	Trumbull St. to Union Pl.	Aztec (Mexican)	1916
Church Street	Main St. to Trumbull St.	Bermudez	1918
Church Street	High St. to Union Pl.	Bermudez	1918
Conn. Blvd.	State St. to Ferry St.	Aztec (Mexican)	1916
Conn. Blvd.	Ferry St. to Morgan St.	Bermudez	1920
Farmington Ave.	South track and dummy, Sigourney St. to Woodland St.	Bermudez	1909

LIST OF ASPHALTED STREETS GIVING KIND OF ASPHALT USED AND YEAR LAID (Continued)

Street	Location	Asphalt Used	Year Laid
Farmington Ave.	South side, south track and dummy, from 110 ft. east of Tremont St. to 120 ft. west of Beacon St.	Bermudez and Trinidad	1911
Farmington Ave.	North side and north track from 110 ft. east of Tremont St. to 140 ft. west of Beacon St.	California and Bermudez	1911
Farmington Ave.	Woodland St. to 100 feet east of Tremont St.	Bermudez	1910
Farmington Ave.	From 120 ft. west of North Beacon St. and from 140 ft. west of North Beacon St. to City Line, both sides	California (Atlas)	1911
Farmington Ave.	North track, Sigourney St. to Woodland St.	California (Atlas)	1909
Farmington Ave.	North and south sides, from Asylum to Woodland Sts.	Bermudez and 5% California (Atlas)	1913
Farmington Ave.	North and south tracks and dummy, from Sigourney St. to Asylum St.	Bermudez and 5% California (Atlas)	1917
Ferry Street	Front St. to foot of Hill	Bermudez	1917
Ford Street	Asylum St. to Bridge over Park River	Bermudez	1908
Front Street	Potter St. to Sheldon St.	Bermudez and California	1912
Front Street	Potter St. to State St.	California (Acme)	1912
Front Street	Morgan St. to State St.	Bermudez and 5% California (Atlas)	1913
Front Street	Intersection at Talcott St.	Trinidad and Bermudez, 50 and 50%	1913
Gold Street	Main St. to Lewis St.	Trinidad	1898
Grove Street	Front St. to Prospect St.	California (Acme)	1912
Grove Street	Prospect St. to Main St.	Trinidad	1898
Hamilton Street	Bridge over Park River	Bermudez and 5% California	1914
High Street	Church St. to Main St.	Bermudez	1911
High Street	Church St. to Main St.	Aztec (Mexican)	1918
High Street	Asylum St. to south side of Allyn St., north side of Allyn St to south side of Church St.	Bermudez and 5% California	1914
Hopkins Street	Broad St. to Asylum St.	Trinidad	1899
Hudson Street	Bridge over Park River	Bermudez	1918
Huyshope Ave.	Charter Oak Ave. to Masseek St.	Bermudez and Aztec	1918
Jewell, Trumbull and Wells Sts.	Main St. to Pearl St.	Bermudez	1919
Kilbourn Street	Front St. to Charles St.	Bermudez	1917
Kinsley Street	Market St. to Main St.	Trinidad	1898
Lewis Street	Pearl St. to Gold St.	Trinidad	1900
Main Street	East side, Wyllys St. to 100 feet south of Charter Oak Ave.	Aztec (Mexican)	1914
Main Street	East side, from 140 ft. north of to 100 ft. south of Charter Oak Ave.	Bermudez	1910
Main Street	East side from Sheldon St. to 140 ft. north of Charter Oak Ave.	California (Obispo)	1910
Main Street	West of tracks along east side of South Green	Aztec (Mexican)	1918

LIST OF ASPHALTED STREETS GIVING KIND OF ASPHALT USED AND YEAR LAID

Street	Location	Asphalt Used	Year Laid
Albany Avenue	South side, Lumber St. to East St.	Trinidad	1900
Albany Avenue	North side and tracks, Lumber St. to East St.	California (Atlas)	1909
Albany Avenue	Both sides and tracks, East St. to 50 ft. east of Magnolia St.	Aztec (Mexican)	1914
Albany Avenue	Magnolia St. to Woodland St.	Aztec (Mexican)	1916
Albany Avenue	Woodland St. to Baltimore St.	Bermudez	1917
Allyn Street	Trumbull St. to Union Pl.	Bermudez	1917
Ann Street	Asylum St. to Allyn St.	Trinidad	1898
Ann Street	Allyn St. to Main St.	Bermudez	1917
Arch Street	Prospect St. to Front St.	Bermudez	1920
Asylum Street	Main St. to Spruce St.	Bermudez	1908
Asylum Street	Strips on both sides, Spruce St. to Garden and Hopkins Sts.	Bermudez and California (Atlas)	1912
Asylum Street	Strip on north side Garden St. westerly to header at macadam	Aztec (Mexican)	1914
Asylum Street	South side, Hopkins St. to Farmington Ave.	Bermudez and 5% California	1913
Atheneum Street	Prospect St. to Main St.	Trinidad	1896
Atheneum St., So.	Main St. to Prospect St.	Aztec (Mexican)	1915
Broad Street	Bridge over Park River	Bermudez and 5% California	1914
Capitol Avenue	Both sides, Park River Bridge to Laurel St.	Bermudez	1909
Capitol Avenue	North side, Hungerford St. to Lafayette St.	Bermudez	1910
Capitol Avenue	South side and south track, Broad St. to Lafayette St.	Bermudez	1911
Capitol Avenue	North track and dummy, 150 ft. east of Oak St. to Lafayette St.	Bermudez	1911
Capitol Avenue	Both sides, Broad St. to Park River Bridge	Bermudez	1911
Capitol Avenue	Tracks, Park River Bridge to Laurel St.	California (Atlas)	1909
Capitol Avenue	North side, Hungerford St. to Broad St.	California (Atlas)	1910
Capitol Avenue	Park Terrace to Sigourney St.	Aztec (Mexican)	1916–1917
Capitol Avenue	Intersection at Lafayette St.	California (Atlas)	1911
Capitol Ave. Ext.	Bridge	Bermudez	1919
Central Row	Main St. to Granite Block	Bermudez (small area California)	1909
Charles Street	Kilbourn St. to Morgan St.	Bermudez	1920
Church Street	Main St. to Trumbull St.	California (Atlas)	1909
Church Street	Union Pl. to Spruce St.	Bermudez and 5% California	1913
Church Street	Intersection at Spruce St.	Trinidad and Bermudez, 50 and 50%	1913
Church Street	Trumbull St. to Union Pl.	Aztec (Mexican)	1916
Church Street	Main St. to Trumbull St.	Bermudez	1918
Church Street	High St. to Union Pl.	Bermudez	1918
Conn. Blvd.	State St. to Ferry St.	Aztec (Mexican)	1916
Conn. Blvd.	Ferry St. to Morgan St.	Bermudez	1920
Farmington Ave.	South track and dummy, Sigourney St. to Woodland St.	Bermudez	1909

RECORD OF PERMANENT PAVEMENTS IN HARTFORD TO APRIL 1, 1921 (Continued)

Street	Location	Asphalt Used	Year Laid
Morgan Street	Connecticut Boulevard to Bridge	Aztec (Mexican)	1919
Mulberry Street	Main St. to Wells St.	Trinidad	1898
North Street	Windsor St. to Village St.	Bermudez	1917
North Street	Village St. to Railroad	Bermudez	1920
Park Street	Main St. to Zion St.	Aztec (Mexican)	1916 -1917
Park Street	Bridge over Park River	Bermudez	1912
Pearl Street	Tracks from Main St. to 150 ft. west	Bermudez	1909
Pearl Street	Tracks, from 150 ft. west of Main St. to Ford St.	Bermudez	1910
Pearl Street	Both sides, Main St. to Ford St.	Trinidad	1903
Pleasant Street	Winthrop St. to Main St.	Trinidad	1903
Pleasant Street	Windsor St. to Market St.	Trinidad	1913
Pleasant Street	Market St. to Railroad	Trinidad and Bermudez 50 and 50%	1913
Portland Street	Pleasant St. to Avon St.	Aztec (Mexican)	1918
Pratt Street	Main St. to Trumbull St.	Bermudez	1917
Prospect Street	Central Row to Grove St.	California (Acme)	1912
Prospect Street	Bridge over Park River	Bermudez	1918
Prospect Street	Athenæum St. to Park River	Bermudez	1920
Prospect Street	Grove St. to Atheneum St.	Bermudez	1919
Prospect Street	Bridge to Sheldon St.	Bermudez	1919
Sequassen Street	Foot of Hill to Huyshope Ave.	Bermudez	1917
Sheldon Street	Union St. to Taylor St.	California (Acme)	1912
Sheldon Street	Main St. to 77 ft. west of Union St.	California (Atlas)	1911
Sheldon Street	Main St. from 77 ft. west of Union St. to Union St.	Texaco	1911
Sheldon Street	Taylor St. to Van Dyke Ave.	Bermudez	1917
Spruce Street	Asylum St. to Church St.	Trinidad	1900
State Street	Gutters, both sides, from Market St. to Front St.	Bermudez	1909
State Street	South side and track from end of granite block west of Front St. to Connecticut Boulevard	Bermudez	1912
State Street	North side, track and dummy, from 220 ft. east of granite block to Connecticut Boulevard	Bermudez and California (Acme)	1912
State Street	North side, track and dummy, from granite block 220 ft. easterly	California (Acme)	1912
State Street	North side, granite block to Main St.	California (Atlas)	1909
Talcott Street	Gutters, on both sides, Market St. to Main St.	Trinidad	1898
Talcott Street	Front St. to Market St.	Aztec (Mexican)	1914
Temple Street	Market St. to Main St.	Trinidad	1898
Temple Street	Front St. to Market St.	Bermudez and 5% California	1914
Trinity Street	East side and tracks, Capitol Ave. to Bridge	Bermudez	1908

Trinity Street	West side, Capitol Ave. to Ford St.	Aztec (Mexican)	1914
Trumbull Street	Asylum St. to Pearl St.	Texaco	1915
Trumbull Street	Asylum St. to Pratt St. and Church St. to Main St.	Trinidad	1898
Trumbull Street	Church St. to Pratt St.	Bermudez and 5% California	1914
Van Dyke Ave.	Sheldon St. to Masseek St.	Bermudez	1917
Village Street	Windsor St. north	Trinidad	1898
Village Street	City Park to Pleasant St.	Trinidad	1899
Village Street	Pleasant St. to North St.	Aztec (Mexican)	1915
Village Street	North St. to Avon St.	Texaco	1915
Wethersfield Ave.	Wyllys St. to Bond St.	Aztec (Mexican)	1915
Wethersfield Ave.	Bond St. to City Line	Aztec (Mexican)	1919
Windsor Avenue	Tracks, Albany Ave. to Canton St.	Bermudez	1907
Windsor Avenue	Tracks, Canton St. to Capen St.	California (Atlas)	1910
Windsor Avenue	Capen St. to Westland St.	Bermudez	1917
Windsor Avenue	East side, Canton St. to Capen St.; also west side, Mather St. to Capen St.	Trinidad	1899
Windsor Avenue	West side, Main St. to Mather St.	Aztec (Mexican)	1914
Windsor Avenue	East side, Main St. to Canton St.	Bermudez	1917
Windsor Avenue	Westland St. to City Line	Aztec and Bermudez	1918
Windsor Street	City Line to Pleasant St.	Trinidad	1898
Windsor Street	Pleasant St. to Avon St.	Aztec (Mexican)	1914
Winthrop Street	Pleasant St. to Railroad	Bermudez and Aztec	1920

RECORD OF PERMANENT PAVEMENTS IN HARTFORD TO APRIL 1, 1921 (Continued)

Street	Location	Asphalt Used	Year Laid
Morgan Street	Connecticut Boulevard to Bridge	Aztec (Mexican)	1919
Mulberry Street	Main St. to Wells St.	Trinidad	1898
North Street	Windsor St. to Village St.	Bermudez	1917
North Street	Village St. to Railroad	Bermudez	1920
Park Street	Main St. to Zion St.	Aztec (Mexican)	1916–1917
Park Street	Bridge over Park River	Bermudez	1912
Pearl Street	Tracks from Main St. to 150 ft. west	Bermudez	1909
Pearl Street	Tracks, from 150 ft. west of Main St. to Ford St.	Bermudez	1910
Pearl Street	Both sides, Main St. to Ford St.	Trinidad	1903
Pleasant Street	Winthrop St. to Main St.	Trinidad	1903
Pleasant Street	Windsor St. to Market St.	Trinidad	1913
Pleasant Street	Market St. to Railroad	Trinidad and Bermudez 50 and 50%	1913
Portland Street	Pleasant St. to Avon St.	Aztec (Mexican)	1918
Pratt Street	Main St. to Trumbull St.	Bermudez	1917
Prospect Street	Central Row to Grove St.	California (Acme)	1912
Prospect Street	Bridge over Park River	Bermudez	1918
Prospect Street	Atheneum St. to Park River	Bermudez	1920
Prospect Street	Grove St. to Atheneum St.	Bermudez	1919
Prospect Street	Bridge to Sheldon St.	Bermudez	1919
Sequassen Street	Foot of Hill to Huyshope Ave.	Bermudez	1917
Sheldon Street	Union St. to Taylor St.	California (Acme)	1912
Sheldon Street	Main St. to 77 ft. west of Union St.	California (Atlas)	1911
Sheldon Street	Main St. from 77 ft. west of Union St. to Union St.	Texaco	1911
Sheldon Street	Taylor St. to Van Dyke Ave.	Bermudez	1917
Spruce Street	Asylum St. to Church St.	Trinidad	1900
State Street	Gutters, both sides, from Market St. to Front St.	Bermudez	1909
State Street	South side and track from end of granite block west of Front St. to Connecticut Boulevard	Bermudez	1912
State Street	North side, track and dummy, from 220 ft. east of granite block to Connecticut Boulevard	Bermudez and California (Acme)	1912
State Street	North side, track and dummy, from granite block 220 ft. easterly	California (Acme)	1912
State Street	North side, granite block to Main St.	California (Atlas)	1909
Talcott Street	Gutters, on both sides, Market St. to Main St.	Trinidad	1898
Talcott Street	Front St. to Market St.	Aztec (Mexican)	1914
Temple Street	Market St. to Main St.	Trinidad	1898
Temple Street	Front St. to Market St.	Bermudez and 5% California	1914
Trinity Street	East side and tracks, Capitol Ave. to Bridge	Bermudez	1908

ABLE SHOWING COST PER YARD FOR REPAIRS TO SHEET ASPHALT PAVEMENT ON TYPICAL STREETS OR SECTIONS OF STREETS FOR EACH YEAR AFTER THE EXPIRATION OF GUARANTEE TO APRIL 1, 1921

Street	Section	Yards City Only	Completed	Years Guaranteed	Sixth Year	Seventh Year	Eighth Year	Ninth Year	Tenth Year	Eleventh Year	Twelfth Year	Thirteenth Year	Fourteenth Year	Fifteenth Year	Sixteenth Year	Seventeenth Year	Eighteenth Year	Nineteenth Year	Twentieth Year	Twenty-first Year	Twenty-second Year
					$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Albany Avenue	East St. to Magnolia St.	9064	1914	5	.004																
Ann Street	Asylum St. to Allyn St.	1170	1898	5					.005		.005		.01	.01	.01			.002		.02	.255
Asylum Street	Main St. to Spruce St.	7351	1908	10						.036	.038										
Capitol Avenue	Sigourney St. to Laurel St.	2059	1909	5			.071	.023	.055	.123											
Farmington Ave.	Asylum St. to Woodland St.	11567	1913	5	.033	.031															
Farmington Ave.	Woodland St. to Tremont St.	8741	1910	5		.002	.021	.014	.015												
Farmington Ave.	Tremont St to Prospect Ave.	4153	1911	5				.009													
Ford Street	Asylum St. to Pearl St.	1651	1908	5						.015	.083										
Front Street	Sheldon St. to State St.	5192	1912	5	.009	.001	.036														
Front Street	State St. to Morgan St.	4583	1913	5	.004	.007															
Gold Street	Main St. to Lewis St.	1458	1898	5								.02	.02		.01	.006	.005	.027	.007	.141	.083
Grove Street	Main St. to Prospect St.	913	1898	5					.04	.06	.06	.03	.12	.14	.07	.049	.078	.138	.014	.128	.208
Grove Street	Prospect St. to Front St.	1429	1912	5	.004																
Hopkins Street	Broad St. to Asylum St.	3136	1899	5		.07	.09	.24	.12	.22	.17	.13	.07	.11	.067	.068	.058	.071	.372	.20	
Kinsley Strèet	Main St. to Market St.	1037	1898	5						.09		.01			.01	.005	.003	.058	.009	.098	.273
Lewis Street	Pearl St. to Gold St.	1085	1900	5						.01	.02		.01	.009		.003		.04			
Market Street	Morgan St. to Pleasant St.	2846	1914	5	.029																
Marsh Court	Market St. to Village St.	553	1913	5																	
Mulberry Street	Main St. to Wells St.	1299	1898	5		.02		.02	.04	.01		.02	.03	.05	.07	.004	.015	.038	.097	.321	.067
Pearl Street	Main St. to Ford St.	4581	1903	10						.03	.011	.002	.05	.012	.039	.155					
Pleasant Street	Main St. to Winthrop St.	1010	1898	5	.01						.05	.01			.01	.016	.013	.024		.10	
Pleasant Street	Windsor St. to Railroad	2240	1913	5	.027	.192															
Sheldon Street	Main St. to Union St.	4287	1911	5	.005	.013	.003	.066													
Sheldon Street	Union St. to Commerce St.	1354	1912	5																	
Spruce Street	Asylum St. to Church St.	2286	1900	5				.002	.002	.01	.02	.05	.05	.051	.013	.03	.063	.201	.218		
State Street	Front St. to Conn. Boulevard	1700	1912	5	.002	.007	.039														
Talcott Street	Market St. to Front St.	1279	1914	5	.018																
Temple Street	Main St. to Market St.	1052	1898	5	.003	.006					.01			.03	.001	.003	.01	.042		.052	.131
Temple Street	Market St. to Front St.	2033	1914	5																	
Village Street	City Park to Pleasant St.	1264	1899	5							.005	.03	.02	.01	.016	.039	.023		.006	.130	
Windsor Street	Village St. to Pleasant St.	2318	1898	5	.005				.015			.07	.14	.047	.031	.031	.041	.153	.006	.086	0.14
Windsor Street	Pleasant St. to Avon St.	3680	1914	5	.044																

Date Due

Demco 38-297

3 2044 029 254 13

TE
25
Hart
H253
v.1

Hartford, Conn. Dept. of
Engineering.

Annual report, 1st,
1908 - 14th, 1921.

83291